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OXYGEN TENTS AND NASAL CATHETERS*

BY

E. P. POULTON, D.M., F.R.C.P.

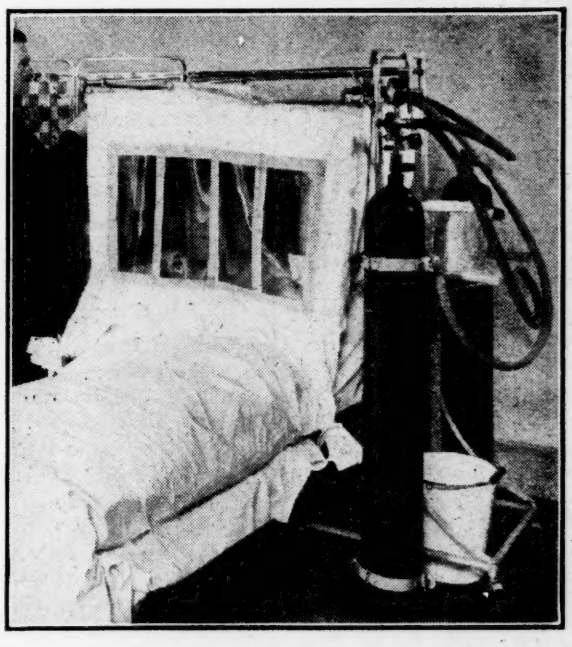
PHYSICIAN TO GUY'S HOSPITAL

Assisted by T. W. ADAMS, A.INST.P.

The principle of the Guy's oxygen tent is that the mechanism for cooling and drying the air is in the tent itself, so that the only function of the ventilating air current is to circulate the air and remove carbon dioxide. A relatively small flow, such as is provided by the injector, is enough for this. The working of the tent has been fully described,[1] but certain modifications have since been introduced.

Modifications in the Tent

Previously the cooling mechanism consisted of two ice tins let in through the roof of the tent, with a total surface area for cooling of 1,110 square inches. These have now been replaced by a single tin with a cooling surface of 1,380 square inches, let into the tent at the side and carried on a stand, which supports the tent; the roof of the latter is now quite light. The tent can be raised or lowered on the stand, and when not in use folds up against it. The arrangement is compact.



A tray is fitted to the stand to carry the analysis apparatus and the tin of soda lime, "protosorb" brand. Bands can be fitted to the two uprights to support two 100 cubic foot cylinders of oxygen, which rest on the floor and keep the tent in position. These must be removed if the tent is to be moved about, but not if only small adjustments of position are required. The tent can be lowered over the patient or withdrawn with the stand in position at the bedside. With two cylinders in position there is always a spare, which can be attached to the system immediately. In the tents supplied by the British Red Cross Society to the twelve voluntary teaching hospitals in London these bands were not fitted, owing to an error, so that a special cylinder stand to hold the two oxygen cylinders had to be devised.

From motives of economy only one injector is supplied with each tent, and though a full description of the mechanism has been published[1] repairs may entail some delay. There is the possibility of its failing at some awkward time when help is not available, such as in the middle of the night; if the tent had to be removed the patient might die. Consequently an attempt has been made to find a temporary substitute. Since the conditioning of the air is independent of the injector, oxygen can be passed directly into the tent through one of the sleeves, and so it is only necessary to remove the carbon dioxide.

The following experiment shows that a tray of soda lime may be introduced into the tent in an emergency. A subject remained in the tent eighty minutes without soda lime in the circuit. The proportion of CO_2 rose to between 2 and 3 per cent. A tray 14 by 19 inches covered with soda lime was then introduced, and the carbon dioxide at once fell to between 1 and 2 per cent., at which level it remained till the tent was removed two hours and twenty minutes later.

In the original model the tent was short, and tied round the patient's wrist. Since the patient often objected the tent was made long enough to enclose the whole body. It was made airtight by two sets of "Zip" fasteners on the top of the tent pulling together two cylindrical lengths of rubber. The mechanism was unwieldy and the patient had to be lifted into the tent.

The New Model

In the course of manufacture by Messrs. Siebe Gorman and Co. the present plan was evolved. The tent is made in one piece. It is spread like an apron over the bed above the patient, and tucked in under the mattress all round. The mattress is previously covered with a waterproof sheet, 9 feet by 6 feet, the waterproof surface

* A medical lecture given at King's College Hospital on January 24th.

being upwards, and it is tucked in all round under the mattress. Airtightness is secured by the two waterproof surfaces being in contact and pressed together under the mattress. The patient lies between two layers of mackintosh, separated, of course, from them by sheets and blankets. (See figure.)

Access to the patient for washing the lower part of the body, for dressings where necessary, and for bed-pans, is obtained by partially untucking the tent. Food and drink are handed in as heretofore through the sleeves, which are also used for washing the upper parts of the body. An alternative plan is to lay a mackintosh sheet under the mattress. But in this case the bed must be made up before the patient is placed on it. With the first arrangement there is less disturbance of the patient, since it is only necessary to draw the mackintosh sheeting from the foot of the bed up under him—a simple matter for two skilled nurses. The rest of the tent is then applied without moving him at all. Two inexpensive soda lime tins are supplied with the tent ; these can be renewed when worn out ; rusting is prevented if they are always kept closed, even when empty.

The Importance of Airtightness

The percentage of oxygen in the tent depends on its airtightness. If this is satisfactory some inflation of the tent should be noticed when oxygen is delivered for a minute or two through the by-pass at the beginning of treatment. The importance of the under mackintosh is illustrated by some experiments with the Heidbrink tent—an American tent of which some examples are available in this country. With this tent there are instructions that the best results are obtained when the mattress is covered with a mackintosh, but no special mackintosh was originally provided with the tent, though I believe this defect is now remedied, and no analysis of the oxygen content of the air is made—at any rate in this country.

The following results for the oxygen percentage were obtained with the Heidbrink tent in use at a London hospital for surgical cases where a good deal of nursing was required. With a 5½-litre flow of oxygen the percentage in the tent was 30. In another case with an 8-litre flow the maximum percentage was 35 ; determinations at other times gave only 25 per cent. of oxygen : the oxygen in the atmosphere is 21 per cent. Clearly the tent was doing very little good. At the same time the original Guy's model was giving consistently high figures for the oxygen percentage.

Another test was carried out with the Heidbrink tent, the mattress being covered with a mackintosh sheet. The same subject had been in the latest form of Guy's tent previously. The comparative results are shown in Table I. It required 8 litres of oxygen to raise the oxygen percentage up to 45, and with 3 litres it fell to 30.

TABLE I

Guy's Model

Time	Percentage of Oxygen	Temperature	Relative Humidity per cent.	Rate of Flow of Oxygen
1.55 a.m.	30	57°	75	2.75 litres (min.)
12.35 p.m.	40			"
1.10 p.m.		56°	69	"
2.20 p.m.	53			Rate cut down to 2.5 litres (min.)
2.40 p.m.		56.5°	72	"
3.20 p.m.	55			Rate cut down to 2.0 litres (min.)
4.10 p.m.		59°	73.5	"
4.15 p.m.	51			"

Lunch given at 1.10 p.m. ; tea given at 3.50 p.m.

Heidbrink Tent

Time	Percentage of Oxygen	Temperature	Relative Humidity per cent.	Rate of Flow of Oxygen		
				Injector	By-pass	Total
11.25 a.m.	22	56°		4 litres (min.)	4 litres (min.)	8 litres (min.)
11.45 a.m.	27			"	"	"
12.20 p.m.	32	64°	73	"	"	"
12.40 p.m.	38			"	"	"
1.0 p.m.	38	62°	73	"	"	"
1.40 p.m.	40	65°	64	"	"	"
				Rate cut down to		
2.10 p.m.				3 litres (min.)	5 litres (min.)	8 litres (min.)
2.40 p.m.	45	66°	59	"	"	"
				Rate cut down to		
3.15 p.m.	42	65°	64	3 litres (min.)	0 litres	3 litres (min.)
3.40 p.m.	42	65°	64	"	"	"
4.50 p.m.	30	66°	69	"	"	"

Lunch given at 12.30 p.m.

The temperature rose 10°, but the humidity was satisfactory, though it rose steadily when the rate was cut down. On the other hand, in the Guy's tent with 2 litres of oxygen the percentage remained over 50. The temperature was lower, and though the humidity was a little higher than in the Heidbrink tent it remained fairly constant.

A previous test with the Heidbrink tent and extra mackintosh showed that overheating might readily occur. Thus with a fat woman suffering from bronchitis with 6 litres of oxygen the percentage of oxygen after four hours was 65, the temperature 64°, and the relative humidity 83 per cent. On cutting the oxygen flow down to 3 litres the oxygen fell to 50 per cent., the temperature rose to 66°, the humidity was 79 per cent., and the patient complained of feeling hot. This is because cooling takes place outside the tent, and the stream of air produced by the injector may be insufficient for the purpose ; a motor fan would be required as in the Barach-Thurston tent or McKesson tent. The disadvantage of a motor fan is that the mechanism is apt to go wrong at unexpected moments. I was once called to such a case, where the patient had suddenly to be taken out, but, unfortunately, it was too late to save him.

The Oxygen Tent and Nasal Catheter Compared

Various types of nasal catheter have been described, and there is no doubt that the alveolar oxygen percentage can be raised by such means. Mr. T. W. Adams and I have recently studied this subject. In the first place we looked for the most effective and comfortable type of apparatus. The single nasal catheter—Jaques No. 9—that is passed three inches up the nose is uncomfortable, but tolerable at any rate for a certain length of time. A double nasal catheter passed up each nostril—we used two No. 6 catheters—was hardly tolerated without local anaesthesia. Eventually we used the forked nasal tube, which just enters both nostrils, as described by Davies and Gilchrist.[2]

During these experiments the subject was sitting, and the oxygen was delivered through a flowmeter which was calibrated by a standardized water meter, delivering 15 litres at each revolution. After five minutes of quiet breathing the prepared oxygen pipette was placed with its nozzle inside the subject's mouth, and the sample was taken at the end of a deep expiration following a normal inspiration ; in most experiments the mouth was closed till the sample was taken, but the effect of breathing through the mouth was also tested, so as to imitate a dyspnoeic patient.

The rate of flow, number of determinations, and the maximum range are represented in Table II.

TABLE II.—*Alveolar Oxygen at Different Rates of Flow*

Subject	Rate of Flow	No. 9 Catheter: No. of Tests	No. 9 Catheter: Maximum Percentage	No. 9 Catheter: Minimum Percentage	Remarks	Forked Nasal Tube: No. of Tests	Forked Nasal Tube: Maximum Percentage	Forked Nasal Tube: Minimum Percentage	Remarks
	litres				Average 13 %				Breathing air
T.W.A.	0	9	15	12					
"	2.2	9	34	17	Mouth closed	9	25	18	With Müller valve
"	2.2	3	26	21	"	3	24	18	No " "
"	3.3	3	29	27	"	3	30	23	No " "
"	3.3				"	9	29	19	With " "
"	4.4	11	31	24	"	11	35	28	With " "
"	4.4				Mouth-breathing	6	27	23	With " "
"	4.4				Mouth closed	2	28	28	No " "
"	6.7	3	37	30	"	9	39	36	With " "
E. P. P.	4.4				"	8	36	29	With " "
"	4.4				Mouth-breathing	4	35	28	With " "
"	4.4				Mouth closed	16	35	31	No " "
"	6.7				"	8	45	33	No " "
"	6.7				Mouth-breathing	4	36	30	No " "
"	8.7				Mouth closed	8	49	48	No " "

The average alveolar oxygen at 2 to 9 litres flow given in Table III was obtained by plotting the actual flow and the average of the experimental results on squared paper. As stated by Barker, Parker, and Wassel,[3] we found that the alveolar oxygen was proportional to the flow.

TABLE III.—*Alveolar Oxygen at Different Rates of Flow (Average Results. Mouth Closed)*

Rate of Flow	No. 9 Catheter: With Müller Valve	No. 9 Catheter: Without Valve	Forked Nasal Tube: With Müller Valve	Forked Nasal Tube: Without Valve
2 litres	21.5 % (T.W.A.)	22.5 % (T.W.A.)	22.5 % (T.W.A.)	20 % (T.W.A.)
3 "	24.5 % "	27.0 % "	24.5 % "	26 % "
4 "	27.5 % "	—	32.5 % (E.P.P.) 29.0 % (T.W.A.)	32 % (E.P.P.) 27 % (T.W.A.)
5 "	30.0 % "	—	37.0 % (E.P.P.) 32.0 % (T.W.A.)	36.5 % (E.P.P.) 29 % T.W.A.)
6 "	32.0 % "	—	37.0 % "	39 % (E.P.P.)
7 "	34.5 % "	—	38.0 % "	43 % "
9 "				50 % "

In some experiments a Müller valve, fitted with a small rubber bag, was placed between the flowmeter and the respiratory tubes, as described by Davies and Gilchrist. Since the bag expands during expiration, when the valve tends to close, an extra volume of oxygen is delivered during inspiration, and the alveolar oxygen should be higher with the valve. On the whole, the results are a little in favour of the valve, especially at the rate of 4 litres ; but the difference is hardly sufficient to warrant the addition of this extra complication. The results with the valve are much lower than those found by Davies and Gilchrist (1, p. 124).

Two objections to these results might be raised. The first is that the clinical oxygen pipette provides too rough a method to give results of any value. The consistency of the results, as shown in Table IV, is a sufficient answer to this. Drs. Marriott and Robson (who since the publication of their paper[5] have kindly collaborated with us) have agreed that in practised hands the pipette gives sufficiently reliable results, and that its great advantage is that a large number of determinations can be undertaken at one time. Further, the results are comparable with the analyses of the air in the tent, which in this country are usually made with the pipette ; for it has been shown that in the oxygen tent the alveolar oxygen is roughly that of the atmosphere of the tent.[3]

The second objection is that the method of sampling is inadequate. To test this we have taken samples directly from the mouth into the burette of a Haldane apparatus and simultaneously taken air into the pipette. In most cases the CO_2 percentage of the alveolar sample was alone determined, because this value would be the criterion that air from the deep recesses of the lungs was being obtained. While breathing air, the average alveolar CO_2 for E. P. P. was 5.77 per cent. and the range 5.91 to 5.55 per cent. With oxygen, administered through the nose with the mouth closed, the results, eleven in all, were higher, as would be expected—namely, an average of 6.5 per cent. and a range of 6.9 to 6.1—so that it is clear that true alveolar air was being obtained.

Since the CO_2 of the alveolar air is always absorbed during the oxygen analysis, a deduction of 6 per cent. has been made from the corrected reading of the pipette to obtain the true oxygen reading. This, in effect, means deducting 1 per cent. from the original reading (see later). Finally, four alveolar samples were analysed for oxygen, both with the pipette and with the Haldane ; the following are the percentage results respectively: 27, 28.1 ; 29, 27.5 ; 31, 51.5 ; 47, 45.6. The low value for the pipette —namely, 31 in the third set—may be due to the fact that it was the subject's first trial with this particular technique.

These results would suggest that the clinical oxygen pipette might be used, with an accuracy of ± 5 per cent., to test whether a patient was obtaining the full value of the nasal catheter or forked nasal tube. A little practice in breathing out deeply through the mouth would be required. One of my patients gave quite a satisfactory result. During the expiration the stream of oxygen should be interrupted, as advised by Marriott and Robson.[5] If the tip of the pipette is partly occluded by the tongue the entry of air is prevented, and too high results will be obtained.

Single and Double Catheters

An important comparison is between the single nasal catheter and the forked nasal tube. In most cases the latter gives the best results, and so this method should displace the single catheter for clinical use, especially as it is more comfortable. There is some variation between the two subjects: thus the results for E. P. P. are higher than for T. W. A. at 4 and 6 litres. Doubtless everything depends on the exact position of the tubes, and this variability is one of the disadvantages of the method compared with the tent. In this connexion quite a disconcerting result was obtained for E. P. P. on February 26th, 1935, using the same technique with a flow of 8.7 litres, which gave previously a close range of 48 to 49 per cent. On this occasion with the mouth closed the results were 37, 33, 34, 32, 37, while the average of consistent CO_2 results was 6.6 per cent., so that true alveolar air was being analysed. There was some extra irritation of the nose on this occasion, and at one time a little bleeding. To get the best results with the forked nasal tube a clear air-way is essential, and some local anaesthetic may be desirable.

On the whole, the results with the forked nasal tube are better with mouth closed than with mouth-breathing, as shown in Table II ; those for E. P. P. were usually rather higher than those published by Barker and others.[3] Recently H. L. Marriott and K. Robson[5] have published

good results, using a short double nasal catheter of soft cycle-tyre valve tubing ; with the use of a local anaesthetic this has been kept in position for many days. The problem remains whether with this arrangement as good results are obtained with mouth-breathing as with nasal breathing. Here again there would seem to be individual variation. Marriott and Robson observed no difference in their own case, but in my case mouth-breathing led to considerably lower values. This is an important point, since the continued presence of the nasal catheter may tend towards nasal obstruction, so that eventually breathing may be by the mouth.

Another point is whether the forked nasal tube, which is undoubtedly more comfortable for the patient, yields as reliable results as their double nasal catheter. These are all points of fundamental importance in oxygen therapy, and now that the clinical oxygen pipette is available for analysis it is hoped to investigate them in collaboration.

The advantage of the nasal catheter or forked nasal tube is its simplicity, yet this is its chief snare. I would go so far as to say that as used in this country it is entirely ineffective in four cases out of five ; the oxygen is merely wasted, for no flowmeter is employed and the rate of flow is much too slow. The head-band with the attachment devised by Marriott and Robson has the advantage of fixing the tubes, and so preventing their displacement if they are to be worn continuously ; in this they are preferable to the head-band of the Davies-Gilchrist apparatus, which, however, is so simple that it can be made up in the ward. Their flowmeter also marks an advance. However, for those who have an oxygen tent it may be pointed out that the injector provides a ready-made flowmeter for use with the forked nasal tube. It is only necessary to stop the inflow ventilating tube with a cork, and to connect the outflow tube by means of an adaptor and tubing with the nasal tube. For the flowmeter to register accurately the connecting tube must not offer resistance ; the bore should be at least 1/4 inch all through, and there must be no kinking of the tube.

On the whole, it may be concluded that with the forked nasal tube at 4 litres a minute an average of 30 per cent., or a little more, will be obtained for the alveolar oxygen, while it will require 5 or 6 litres a minute to raise the proportion towards 40 per cent., and 8 to 10 litres to raise it to 50 per cent. if the patient keeps his mouth shut. Ten litres a minute will mean changing a 100-foot cylinder about every four and a half hours. Children are best treated in the tent. The main use of the forked nasal tube should be for an adult patient who is not extremely ill, when 30 to 40 per cent. of oxygen is enough. It may also be used after the patient is removed from the tent, especially if the percentage of oxygen has been high. Thus the 50 or 60 per cent. oxygen of the tent will be reduced to 30 or 40, and after some hours the nasal tube may also be removed. The alternative plan is to lower the oxygen in the tent.

Technique of Using the Tent

Admittedly the oxygen tent is elaborate and skilled attention is required ; this is the reason why a physicist accompanies the tent, and there are already nurses who are familiar with it. But there is no physical discomfort in the tent, and the percentage can be raised to 50 or 60 or higher with a moderate flow of 2 to 3 litres of oxygen a minute. As the patient lies in the atmosphere he is insured against any sudden change of percentage. The psychological dislike of some patients for the tent is bound to disappear in time when its use becomes familiar, except in the case of those few who object to any form of treatment. When the tent was first introduced into one of the wards the patient, a girl of 2¾ years with bronchopneumonia, was removed for washing ; she used to crawl back into the tent of her own accord. Later she was left in the tent continuously. Nursing difficulties will also be solved in this country, as they have already been solved in America, where the tent is widely used ; usually the patient should be disturbed as little as possible. Since there is some evidence that open ulcerations heal well in oxygen, in such cases the number of dressings can be reduced to a minimum.

Restlessness and delirium are much more formidable difficulties. A patient who has been rendered comatose by anoxaemia suddenly wakes up in oxygen, and the first reaction may be to struggle to get out of the tent. If the tent is taken away from such a patient he will almost certainly die. How can he be kept in? Much can be done by persuasion, especially if the attendant has had experience with the tent and realizes its value. But there is another consideration. If a patient in a hospital ward gets out of bed some retentive apparatus is brought, and if he makes a noise so as to disturb other patients he is taken to the "strong room." Why should not the same treatment be applied to a patient in an oxygen tent? His need is greater. Restlessness and delirium following coma are good prognostic signs, and continued treatment is indicated. After recovery the patient remembers nothing about his struggles. Again, too much is made of sleeplessness as a danger ; pneumonia patients die of anoxaemia, with or without toxaemia, and not primarily because they cannot sleep. Morphine should not be given when the patient is in the tent ; a dose may be fatal.

Indications for the Tent

The indications for the oxygen tent are wide, and have already been dealt with.[1] Briefly, they are as follows: in the main, pulmonary diseases, particularly pneumonia and massive collapse—spontaneous and post-operative ; bronchitis, especially if associated with heart failure ; whooping-cough and laryngeal diphtheria ; then circulatory diseases—arteriosclerotic heart disease with failure, coronary thrombosis, and repeated anginal attacks ; and poisoning by carbon monoxide, alcohol, and the barbiturates. A new indication has been recently described by Dr. Fines of the Cornell Medical Centre in New York—not yet published. If it is desired to remove the air after ventriculography or in a penumothorax—for example, in a spontaneous non-tuberculous case—all that is necessary is to use the tent with a high percentage of oxygen—80 per cent. and over. The oxygen diffuses in, displacing the nitrogen, which by physical diffusion passes out into the atmosphere of the tent, where the partial pressure is very low ; the oxygen of the pneumothorax is then rapidly absorbed by the blood. As the lung must be held in expansion until the opening into it has healed, which must take a number of hours, it would presumably be advisable to use the tent for a day or two.

The Clinical Oxygen-measuring Pipette (Poulton & Shackle)

In the description of this instrument, which is used to measure the percentage of oxygen in the tent, it was taken that an error of ± 5 per cent. might be expected.[1] There are various sources of error, most of them tending to give too low readings ; these are now given for the sake of completeness. One caution in the use of the apparatus is necessary. When the rubber on the side tube begins to wear the glass rod may be sucked in, vitiating the result. It may be secured by fastening it round with a piece of pipe cleaner after setting the level at zero.

1. The effect of the elasticity of the bulb can be tested by filling the apparatus to the zero mark with the caustic potash solution without the addition of pyrogallic acid. The level of liquid is raised to the 25, 50, or 75 mark by compressing the

bulb and the tap is turned off; on removing the external pressure on the bulb the level sinks. With the small bulb of half an ounce capacity previously in use the maximum fall was 7.5 per cent., and this decreased with an oxygen percentage greater or less than 50. A larger bulb of 25 c.cm. capacity is now used, which gives a smaller and more uniform error throughout the range of percentages used—namely, 3 per cent. with 50 per cent. oxygen and 2.5 per cent. with 26 per cent. and 65 per cent. oxygen.

2. If now, still using the caustic potash solution, a sample is taken in the ordinary way, the level of liquid will be found to be below zero mark by as much as 5 per cent., even after allowing time for the liquid to drain down the sides of the pipette. This is because the sudden release of the bulb from its contracted position draws more than 1 c.cm. of air into the apparatus. This can be minimized by keeping up the pressure on the bulb with the hand, after the liquid has been raised above the tap, until the sample has been taken, and by releasing the pressure gradually during the collection of the sample, which should last about a second. If much longer than a second elapses, absorption of oxygen will take place to a perceptible extent during the collection of the sample, which will again lead to too low a reading.

3. The air in the dead space between the level of pyrogallic acid in the capillary tube and the tent will produce too low readings; this is minimized by making the sampling tube of the tent of very fine bore and by shortening the rubber connexion as much as possible. Suction through the tube before fitting the apparatus could also be tried, but this is hardly necessary.

4. The presence of any CO_2 in the sample will make the reading too high.

5. After the absorption of oxygen sufficient time must be allowed for the fluid to drain down the side of the tube before the reading is taken; otherwise the result will be too low.

6. Sometimes a perceptible amount of the liquid is left behind in the capillary above the tap, which will also make the reading too low. This will not occur if the bore of the tap has been made sufficiently wide. There will be a similar error if liquid is left behind in the bore of the tap, which may happen if the sample has been taken in too quickly.

TABLE IV

Clinical O_2 Pipettes					Haldane	Difference
1	2	3	4	Average		
Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
65	65	65	64	64.8	68.7	3.9
47	48	45	49	47.1	51.0	3.9
61	63	—	—	61.2	67.6	6.4
61	60	61	—			
48	50	47	46	47.8	52.7	4.9
37	38	36	37.5	37.1	42.0	4.9
36	38	33	36	37.0	42.4	5.4
16	16	15	15	15.5	20.5*	5.0

* Air sample taken from small room with closed windows. Sample from outside air gave 20.8 per cent. including CO_2.

To estimate the actual error the air in the tent was enriched with oxygen and samples were taken for analysis in the Haldane apparatus and in four clinical oxygen pipettes (Table IV). The pyrogallic acid was raised to the top of the capillary and the bulb of the pipette was supported by the hand until the sample had been removed. The readings were taken two to three minutes after mixing, and no further change was noted within five minutes. The results are seen to be consistent, and on the average about 5 per cent. below the Haldane measurements. When a much longer time was allowed for draining the level rose by 1 per cent.

Whereas the error of the pipette in the case of the higher oxygen percentages is fairly constant, the same is not the case when atmospheric air is analysed, and variations ranging between 5 and 1 per cent. have been found on different occasions. This is of no great consequence, since the apparatus will not ordinarily be used for these lower percentages. In spite of this variation the results have been consistent in themselves on each occasion. One series with a difference of 5 per cent. is shown at the bottom of Table IV. At another time the percentages were 20, 20, 20, 20, and at another time 18, 18.5, 18, 17.5. Presumably variations in the elasticity of the bulb are responsible, but this has not been investigated.

In the ordinary clinical use of the apparatus it may be assumed that all readings are 5 per cent. too low. Thus 5 per cent. should be added to all readings, or, in the first place, the level may be adjusted so that the zero coincides with 5 per cent. on the scale, and no correction is then made in the final reading. The error in the final reading is probably less than ± 5 per cent. Greater accuracy is unnecessary in clinical work.

Note.—The best way to fill the oxygen pipette is to clamp it upright in a stand, and to attach to the nozzle, by means of a rubber connexion, a very small funnel or pipette to hold the pyro. solution. On alternately squeezing and relaxing the bulb the required amount runs down into the pipette. The final adjustment of the zero is made by moving the glass rod in the side tube.

The Clinical CO_2-measuring Pipette

Occasional analyses of the CO_2 in the tent are required to show when the soda lime is becoming exhausted and if CO_2 is used in treatment. A fuller study with this pipette shows that it, like the oxygen pipette, is apt to give too low results. The only possible explanation would seem to be that some CO_2 is absorbed by the water before the first reading is made. London tap water is on the alkaline side, and the difference between the CO_2 determinations with the pipette and with the Haldane are considerable, as shown in Table V. There

TABLE V

Pipette.	Analysis with: CO_2	Haldane.	CO_2	Difference	Per cent.
2.49	.....	3.37	.....	0.88	26.0
3.05	.....	3.57	.....	0.52	14.5
0.70	.....	0.83	.....	0.13	15.7

was still some difference when the tap water was acidified, but it was less—namely, 10 per cent. on the average (six determinations). This means that if the actual value of CO_2 was 3 per cent. the pipette would read 2.7 per cent. The simplest way to acidify the tap water is to run a little weak acid solution from the funnel into the pipette just before taking the sample.

Conclusions

1. The recent modifications in the Guy's oxygen tent are designed to prevent the patient from being disturbed when the tent is applied, to facilitate nursing, and to preserve airtightness. Periodical analysis of the air of an oxygen tent is essential.

2. The forked nasal tube is more comfortable than any type of nasal catheter, but much more oxygen is required than with the oxygen tent. Indications for both tube and tent are suggested.

3. The accuracy of the clinical oxygen and CO_2 measuring pipettes has been further investigated, and certain sources of error have been pointed out.

Finally I should like to thank Mr. T. W. Adams for his help and Dr. H. L. Marriott and Dr. K. Robson for their collaboration in part of the work. The incidental expenses were defrayed by a grant from the Medical Research Council.

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The third International Congress on Light will be held at Wiesbaden from September 1st to 7th, under the presidency of Professor Dr. W. Friedrich, head of the Institut für Strahlenforschung of the University of Berlin. Problems will be dealt with relating to the whole field of the biology of light, of biophysics, and the therapy of light. Inquiries should be addressed to the secretary-general, Dozent Dr. H. Schreiber, Berlin, N.W.7, Robert Koch-Platz 1.

A COMPARISON OF CULTURAL METHODS FOR ROUTINE DIPHTHERIA DIAGNOSIS

BY

J. D. ALLAN GRAY, M.B., B.Sc., F.R.C.P.Ed., D.P.H.

AND

DORIS M. STONE, M.D., D.P.H.

(From the Preventive Medicine Department, University of Bristol)

Current literature dealing with the bacteriological diagnosis of diphtheria has revealed a disquieting failure of methods which until recently had been accepted as all-sufficient.[1 2] The recent epidemic of diphtheria in Bristol, associated with the presence of the gravis, mitis, and intermediate types of the organism, has supplied an opportunity of testing and comparing various methods in the hope of finding one giving reliable results with speed and reasonable ease in technique. The methods investigated have involved the use of (*a*) Loeffler slopes, (*b*) Loeffler slopes modified by the addition of glycerin, and (*c*) blood-tellurite media inoculated either directly from the swabs or from the growths on the Loeffler slopes. The hope of finding one all-sufficing method has not been realized, but the evidence suggests that the combined use of a Loeffler slope containing glycerin and a blood-tellurite plate would result in a marked decrease in the number of otherwise "missed" cases without an unreasonable increase in the amount of routine work involved.

Two thousand swabs have been examined by the different methods in parallel experiments. They were received from general practitioners, isolation hospitals, and other institutions, and therefore included *primary swabs* sent for the diagnosis of suspected fresh cases, or for the identification of carriers, and *repeat swabs* taken with a view to determining freedom from infectiveness in known cases and carriers. The majority were obtained from the throat and nose, but a few were from the ear and eye.

Examination of the First Thousand Swabs

A suspension of the material on the swab in three drops of sterile physiological saline solution was used to make a direct film and to inoculate two Loeffler slopes, one modified by the addition of glycerin. The direct films were stained by Neisser's method, and the presence of organisms morphologically identical with diphtheria bacilli was immediately reported to the clinician. The two slopes were left at room temperature until 5 p.m., and then incubated at 37° C. until 9 o'clock the next morning. Incubation for longer than these sixteen hours frequently allowed of the overgrowth of diphtheria bacilli by other organisms. Neisser-stained films made from the slopes were then examined and the positive results were reported.

Subinoculations were made from "likely" areas on each of the slopes on to plates of strong blood-tellurite medium. Sixteen inoculations could be made on each of the 10 cm. plates. The latter were immediately incubated at 37° C. for twenty-four hours, and subinoculations from colonies resembling those of diphtheria bacilli were made on both weak blood-tellurite plates and glycerin Loeffler slopes. After twenty-four hours' incubation at 37° C. the macroscopic appearances of the growths on the weak blood-tellurite medium were noted. At the same time films made from the glycerin Loeffler slopes and stained with Neisser's method were examined for the presence of diphtheria bacilli. Films were not made directly from the blood-tellurite medium because diphtheria bacilli grown thereon frequently fail to show metachromatic granules.[3 4] Where divergences were found in the results obtained by the various methods isolation of the strain concerned was attempted on glycerin-agar plates with the purpose of determining the types.

Examination of the Second Thousand Swabs

Each swab was inoculated on a glycerin Loeffler slope, and immediately thereafter on a strong blood-tellurite plate. Films made from the slopes after sixteen hours' incubation at 37° C. were examined for the presence of *C. diphtheriae*. The plates after incubation at the same temperature were examined at intervals of twenty-four and forty-eight hours, and "likely" growths were subinoculated on glycerin Loeffler slopes. Films were made after incubation overnight and examined as before.

Culture Media Used

1. *Loeffler Blood Serum Containing Glycerin.*—The broth with which the ox serum was mixed was that devised by Cole and Onslow,[5] modified by the addition of 1 per cent. glucose and 5 per cent. glycerin. In its preparation an amount of 0.5 per cent. sodium chloride in distilled water was added to the mixture of laitproto, sodium carbonate, pancreatic extract, and hydrochloric acid, sufficient to reduce the amino-acid content to approximately 40, expressed in terms of cubic centimetres of N/10 alkali per 100 c.cm. of medium.[6]

After inspissation of the mixture of serum and broth, approximately 1 c.cm. of the glucose-glycerin laitproto broth was added to each tube, and the whole was sterilized by steaming. The additional free glycerin broth has for many years been used in Bristol to keep the medium moist during storage, an advantage when few swabs are being sent to the laboratory. The free broth also encourages the growth of certain (particularly gravis) strains of *C. diphtheriae* which grow atypically on ordinary Loeffler slopes.

2. *Loeffler blood serum without glycerin* was identical with 1, except that the broth mixed with the serum and added to the slope did not contain glycerin.

3. *Strong Blood-tellurite Medium.*[3]—Rabbit blood was used and, as suggested by O'Meara and Parish,[1] 0.5 per cent. glucose was added to the agar to increase the whitening of the final medium subjacent to colonies of glucose-fermenting organisms such as *C. diphtheriae*. It was found essential to use a meat extract (ox muscle) for the preparation of the nutrient glucose agar, because the use of synthetic preparations such as lab-lemco greatly reduced the selectivity of the final medium for *C. diphtheriae*. A similar loss of selectivity was produced by storage of the blood-tellurite mixture for more than a fortnight before its incorporation with the glucose agar. Other workers, however, have given three weeks as the limit of storage.[1 3] Haemolysis did not appear to produce unfavourable effects.

4. *Weak blood-tellurite medium* was identical with 3, except that the 2 per cent. potassium tellurite was diluted with seven parts of saline solution, so that its final concentration was approximately 0.02 instead of 0.17 per cent. On this medium the gravis strains of *C. diphtheriae* produced large, granular, grey, "daisy head" colonies; the mitis type convex, shiny, black colonies; and the intermediate type fine, raised, granular, black colonies. The differences, however, were insufficient by themselves to identify the various types, and not so clear as those obtained by Anderson and his co-workers,[7] using a medium containing twice the amount of tellurite.

5. *Glycerin Agar.*—Cole and Onslow's broth containing 5 per cent. glycerin was solidified with 2 per cent. agar.

6. *Carbohydrate Media.*—These included 0.5 per cent. solutions in peptone water of starch, glycogen, dextrin, glucose, maltose, galactose, and saccharose, used for testing the fermentative reactions of the strains of *C. diphtheriae* isolated.

7. *Laitproto broth*, as prepared for 1, but without the addition of glucose and glycerin, was used for typing purposes.

Results with the First Thousand Swabs

Thirty-three of the direct films showed the presence of organisms morphologically indistinguishable from *C. diphtheriae*. Four of these swabs—all from throats—were negative by all the cultural methods. Two of these patients, moreover, did not exhibit clinical evidence of infection. Speed is desirable, admittedly, in the identification of persons harbouring diphtheria bacilli, to permit early isolation and early administration of antitoxin, but the above findings emphasize the need for caution in the interpretation of positive results in direct films, even when made from throat swabs.

Cultural Examination

The table summarizes the results of microscopical examinations of the growths on the serum slopes and blood-tellurite plates. The discrepancies between the results are in part due to unavoidable technical fallacies. For instance, many of the swabs, especially those from carriers and convalescents, contained only a very small number of diphtheria bacilli. Therefore in inoculating the serum slopes from the saline suspensions, the diphtheria bacilli may have been so unequally distributed that nearly all, and in extreme instances all, were transferred to one slope, leaving little or none for the other. Further, scantily positive serum slopes were at times overgrown with other organisms, so that the inoculum transferred to the blood-tellurite plates may not have contained diphtheria bacilli.

TABLE I.—*Results of Cultural Methods with First 1,000 Swabs*

Glycerin Loeffler	Non-glycerin Loeffler	Blood-tellurite from Glycerin Loeffler	Blood-tellurite from Non-glycerin Loeffler	Total Number of Diphtheria Positive	Gravis	Intermediate	Mitis	Not Typed	Saccharose Fermentation	Total
+	+	+	+	61	18	2	41	0	2	63
+	+	+	−	5	1	0	4	0	0	5
+	+	−	+	2	0	0	1	1	0	2
+	+	−	−	30	4	0	9	17	1	31
+	−	+	+	7	0	0	7	0	0	7
+	−	−	+	0	0	0	0	0	0	0
+	−	+	−	8	0	0	4	4	1	9
+	−	−	−	18	1	0	4	13	1	19
−	+	+	+	5	1	0	4	0	0	5
−	+	+	−	0	0	0	0	0	0	0
−	+	−	+	5	0	0	5	0	1	6
−	+	−	−	17	1	0	4	12	0	17
−	−	+	+	16	3	2	11	0	6	21
−	−	+	−	9	1	1	6	1	2	11
−	−	−	+	4	1	0	1	2	1	5
Totals				187	31	5	101	50	15	202

Certain saccharose-fermenting diphtheroids having morphological and staining characteristics identical with *C. diphtheriae* favoured the reporting of false positive results (see Table). This conclusion is supported by the absence of clinical evidence of infection in the individuals concerned. On the blood-tellurite medium the cultural appearances of some of these saccharose-fermenting diphtheroids were not unlike those of diphtheria bacilli of the gravis type. They gave a greyish matt growth and, when the organism fermented glucose as well as saccharose, a whitening of the subjacent medium. Fortunately they could readily be isolated from the blood-tellurite plates and tested for the fermentation of saccharose.

From 202 of the thousand swabs organisms microscopically indistinguishable from *C. diphtheriae* were isolated. In only 187 of these, however, were the organisms found to be *C. diphtheriae,* the remaining fifteen diphtheroids all fermenting saccharose. The following were the numbers of positive results obtained by the use of one medium alone or a combination of media.

Glycerin serum slopes only	131
Non-glycerin (Loeffler) serum slopes only	125
Glycerin and non-glycerin slopes together	158
Glycerin serum slopes and blood-tellurite plates inoculated from them	161
Non-glycerin serum slopes and blood-tellurite plates inoculated from them	152

The figures show clearly that the use of either type of serum alone permits the missing of a seriously large number of positive results. For instance, when glycerin serum slopes were used the additional use of the blood-tellurite plates gave a further thirty positive results ; the corresponding figure for the non-glycerin serum slopes was twenty-seven. Of these thirty, five were gravis, three intermediate, twenty-one mitis, and one untyped. Of the twenty-seven, four were gravis, two intermediate, nineteen mitis, and two untyped. Other workers have recorded that the strains of diphtheria bacilli which fail to produce typical metachromatic granules on primary growth on Loeffler slopes, and which may therefore remain undiscovered unless blood-tellurite media is used, are invariably of the gravis type.[1 2 7] Their results are not, however, strictly comparable with this experiment on account of the addition to the surfaces of the Loeffler slope of the glucose broth allowing the demonstration of the gravis strains. The failure in certain cases of the mitis and intermediate strains to develop on the Loeffler slopes may, as suggested before, be due to uneven distribution of the bacilli.

It is obvious that the greater the number of methods used the greater will be the number of true positive results, but the use of so many methods is impracticable in routine on account of the time involved and the amount of media used. The next best substitute appears to be the combined use of glycerin serum slopes and blood-tellurite plates inoculated from them. This combination gave a slightly higher number of true positive results than either of the other combinations or the sole use of the serum slopes. It was thought possible that inoculation of the blood-tellurite plates directly from the swabs might give a better percentage of positive results than their inoculation from the growths on the serum slopes. The experiments with the second thousand swabs were undertaken with a view to assessing the value of such a procedure.

The incorporation of the glycerin in the serum slopes gave a slightly higher proportion of positive results and so justified its use. Further, the number of additional positives obtained by the subsequent use of the blood-tellurite plates was also slightly greater than in the corresponding media without glycerin.

It is interesting to note that, although 187 of the first thousand swabs were shown by one or more of the media used to harbour *C. diphtheriae,* in only sixty-one cases did all four media yield positive results. This suggests marked paucity of the *C. diphtheriae* in relation to the other organisms present.

Results with the Second Thousand Swabs

Microscopical evidence of the presence of organisms morphologically identical with *C. diphtheriae* was found in 100 swabs. The smaller proportion of positive results compared with the first thousand swabs was due to a large number of the second thousand having been taken during the post-epidemic period. Table II shows the results obtained by the use of the different media.

TABLE II.—*Results of Cultural Methods with Second 1,000 Swabs*

Glycerin Serum	Blood-tellurite Medium	Number of Positives	Gravis	Mitis	Intermediate	Untyped
+	+	54	4	20	0	30
+	−	21	0	7	0	14
−	+	25	12	8	3	2
Totals		100	16	35	3	46

It will be observed that had the serum slopes alone been used the number of positive results would have been seventy-five, whereas with the blood-tellurite medium alone the number would have been seventy-nine. The advantage of the blood-tellurite medium is probably greater than the figures suggest. The routine procedure adopted involved the inoculation of the serum slopes before the blood-tellurite medium. With heavily infected swabs this was of little significance, but when the *C. diphtheriae* were scanty the chances were in favour of their growing out on the serum slopes rather than on the tellurite. In addition, the presence of saccharose-fermenting diphtheroids among the untyped strains of the serum-positive-blood-tellurite-negative group made the total of that group fictitiously high.

It will be noted that no fewer than twelve of the twenty-three typed strains in the serum-negative-blood-tellurite-positive group were of the gravis type. This may be compared with the results of Parish,[2] who found in his experiments that the strains missed by the sole use of serum were invariably of the gravis type.

Discussion

The difficulties met with in the bacteriological diagnosis of diphtheria and described in this paper serve to emphasize what has been stressed for a long time—namely, that it is the duty of the clinician in cases of suspected diphtheria to avoid delay in specific treatment and isolation. At best, bacteriological methods must be regarded as an adjuvant to, and not as a substitute for, clinical diagnosis. They have, however, a great use in the control of carriers and the "clearing" of convalescents. Primary examinations of direct films are useful in aiding the clinician in doubtful cases, but a dogmatic report, either positive or negative, should not be given from primary examination alone.

Serum slopes containing 5 per cent. glycerin give a slightly higher percentage of positive results than Loeffler serum without it. The main advantage of the glycerin, however, is that it retards the drying of the medium when kept in stock. The addition of about 2 c.cm. of glucose broth to the surface of the slope is recommended in the belief that certain gravis strains of *C. diphtheriae* which would otherwise fail to grow may thereby be induced to multiply.

Both types of serum used in this investigation—that is, with and without glycerin as well as the blood-tellurite medium—have been found on occasion to give "false positive" results. These have been due to the presence of saccharose-fermenting diphtheroids which, when grown on the slopes, have presented microscopical appearances identical with those of *C. diphtheriae*, and on blood-tellurite plates have given greyish-black growths, sometimes with subjacent whitening.

Such "false positives" amount probably to between 1 and 2 per cent. of the total number of swabs examined, and the fact that they can and do occur is disquieting. They are a potential danger, inasmuch as their presence in certain communities may conceivably cause a person neither suffering from diphtheria nor carrying diphtheria bacilli to be removed to an infectious diseases hospital, where he may be exposed to various infections. The application of the saccharose fermentation test should therefore be a routine measure in those cases in which the clinical findings are opposed to the bacteriological. This would obviate the need for virulence tests in many of the "scanty positive" cases.

The blood-tellurite medium is valuable for growing strains of *C. diphtheriae* which fail to grow on the serum slopes. Inoculation directly from the swabs and not from the growths on the serum slopes is recommended, since this gives better results and saves time. Even then the time taken for characteristic colonies to develop detracts from the usefulness of the medium in the diagnosis of primary cases. When, however, speed is not of such moment, as in the determination of freedom from infection in convalescents and carriers, its use in conjunction with serum slopes is of very considerable value. It is also most helpful in the isolation of *C. diphtheriae* for virulence and typing tests. Its substitution in place of the serum slope cannot, however, be recommended for routine work, owing to the time which it requires and to the fact that it has not consistently grown all the strains which grew on the serum slopes.

In the course of the investigation it has been repeatedly noticed that diphtheria bacilli grow luxuriantly in the presence of *Staphylococcus aureus*. It appears that any relationship existing between the two organisms may be a true symbiotic effect, or, as suggested by Laybourn,[8] the result of acid formation in the medium by the staphylococcus.

Summary

Two thousand swabs have been examined by various cultural methods, with results which justify the following conclusions.

A provisional diagnosis alone should be made on films from blood serum slopes.

Inoculation of the blood-tellurite medium should, where feasible, be part of the routine examination of all diphtheria swabs, in order to confirm or repudiate the results obtained by the use of the blood serum, to reduce the number of otherwise missed cases, and to allow of easy isolation for the performance of the saccharose fermentation and virulence tests.

The procedure suggested for routine purposes is as follows:

1. In all urgent cases examination of direct smears with immediate reporting to the clinician of positive results as "suspicious."

2. Examination of films from serum slopes (containing glycerin and free glucose broth) with reporting of all results, the clinician realizing that this report is provisional and may be reversed in the light of later results any time up to forty-eight hours.

3. A saccharose fermentation test followed, if negative, by a virulence test in all positive swabs from apparently healthy individuals.

4. Inoculation of (strong) blood-tellurite medium directly from the swab and, after twenty-four to forty-eight hours' incubation, the transference of likely growths to serum slopes (containing glycerin and free glucose broth). After incubation examination of films made from the slopes and the reporting of additional positive results to the clinician when required. These additional positive results must, of course, be controlled as above by saccharose fermentation and virulence tests.

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TREATMENT OF B. COLI PYELITIS WITH ALKALIS

BY

A. ARNOLD OSMAN, *D.S.C.*, F.R.C.P.

(From the Nephritis Clinic, Guy's Hospital and the Department for Medical Investigations, Queen Mary's Hospital)

The variety of therapeutic methods and substances advocated for the treatment of *B. coli* pyelitis suggests that we lack any single established and successful form of therapy. I believe that failure with alkaline therapy generally results from either faulty technique or a mistaken diagnosis.

To give even fairly large doses of sodium bicarbonate, with or without potassium citrate, until the urine turns red litmus paper blue will no doubt suffice in some cases. But in a large number it will cause only temporary improvement or none at all. It is usual, therefore, to try in succession alternating periods of acid and alkaline salts, acid salts and hexamine, hexyl-resorcin, mercurochrome, acriflavine, ketogenic diets, colonic lavage, washing out the renal pelves, vaccines, sour milk, lactose, *B. acidophilus*, and so on, when generally all that is required is a careful adjustment of the dose of alkali, or of the manner in which it is given, and an increase in the fluid intake. In my experience none of these other methods, with the exception of the ketogenic diet, which is referred to later, gives consistently satisfactory results in any large series of cases and over long periods, though in individual instances brilliant success may be achieved at times with all of them. It is not only that the therapeutic results are uncertain, but valuable time may be lost in trying one form of treatment after another, whilst an acute case is passing into the often incurable subacute and chronic stages. Again, many patients may waste large sums of money on expensive drugs, sea voyages, prolonged sojourns at watering-places and spas, and similar therapeutic measures.

Effective Alkali Therapy

We possess in alkali therapy a simple, cheap, and effective remedy for all uncomplicated cases. I can recall no instance of failure except where subsequent investigation has revealed the presence of a urinary calculus, an obstruction to the flow of urine, or a mistaken diagnosis. The method is indeed of diagnostic value, for failure to relieve in a very short time may be regarded as an almost certain indication of some mechanical complicating factor.

The successful treatment of *B. coli* pyelitis with alkalis depends chiefly upon careful attention to detail: essential factors in the method are the production of a copious diuresis and a sufficiently alkaline urine. Clinical trials show that neither alone is effective, though of the two the mechanical flushing out of the urinary passages is probably the more important. A certain degree of alkalinity of the urine tends to inhibit the growth of *B. coli communis*, though it may flourish sometimes in exceedingly alkaline urines, especially *in vitro*. Recent observations suggest that inhibition of growth of the bacilli is more satisfactorily accomplished when the urine has been rendered unusually acid, as with a ketogenic diet. But the precise significance of the reaction of the urine in relation to the growth, or inhibition of growth, is not yet known.

Importance of Rest

All acute and pyrexial cases must be confined strictly to bed until the temperature has become normal, all signs and symptoms have disappeared, and the urine is normal in appearance, at least to the naked eye. The temperature must be carefully taken and closely watched. At first four-hourly readings will be required, but later a record of the morning and evening temperatures will be sufficient. Rectal temperatures are not essential, but if temperatures are taken orally it is important that the thermometer be left *in situ* for at least eight minutes. This applies to all thermometers, whether purporting to be "timed," "tested," "guaranteed," or not. Incidentally, it should be noted that the normal daily range of temperature for an adult confined to bed should be from about 97° to 98° F. A regular evening temperature of 98.4° under such conditions is abnormal. An accurate record of the temperature is essential during the period when the patient is first allowed up on a couch or chair. A slight increase of temperature at this stage requires either a readjustment of the dose of alkalis or sometimes a return to bed. For all practical purposes the temperature chart as a guide to the amount of physical exertion permissible has the same significance as in cases of pulmonary tuberculosis. As in many other acute infective diseases after the temperature has returned to normal a weekly estimate of the sedimentation rate of the red blood corpuscles is a useful index of the general progress of the case.

Fluid Intake and Output

In adults at least six pints of fluid, and preferably more, should be consumed every twenty-four hours during the acute stages. The total quantity of fluid is more important than its actual nature, though the best fluids to give are water, barley water, lemonade, and orangeade, to any of which glucose may be added when severe anorexia prevents the taking of solid food. Weak tea, and skimmed milk with or without soda, may also be given. It is important to have a record of the total quantity of urine passed each twenty-four hours. A significant decrease in the output of urine almost always means that the intake has been allowed to fall below the required minimum and is evidence of careless nursing.

Diet and Milk

In all stages this can safely be left to the wishes of the patient. The acutely ill case with marked pyrexia, rigors, or vomiting will not desire much, and may be kept on fluids with additional glucose, or milk, which may be diluted if necessary. Some authorities are opposed to the giving of milk, but I have seen no ill effects from its use, and provided the patient can tolerate it I generally allow it in the early stages, before solid food can be taken. Skimmed milk is often more agreeable than whole milk, and is especially useful for children. Where large quantities of milk are being taken the amount should of course be reckoned in the total fluid consumption for the twenty-four hours. There is no special reason for limiting the protein intake in any stage of the disease as renal function is not impaired.

Associated Constipation

There is no doubt that *B. coli* infections of the urinary tract are often associated with constipation, especially in women. Nevertheless, diarrhoea is even more harmful, and fluid motions should be avoided. It is better, therefore, not to give purges in any stage. Constipation can always be overcome by regular doses of liquid paraffin or petrolagar, and, if necessary, by an occasional simple enema. It should be remembered that large doses of alkalis themselves have a slight laxative action. In chronic cases liquid paraffin may be supplemented by abdominal massage and exercises.

Administration of Alkalis

Clinical experience shows that the optimum degree of alkalinity is a minimum *p*H of 7.6—that is, a little more alkaline than the normal reaction of the blood. As the

early morning samples of urine are usually the most acid of the twenty-four hours, it is sufficient in most cases to ensure that this specimen be of the required reaction. Should the early morning specimen become less alkaline than *p*H 7.6 then the dose of alkali must be increased without delay, as otherwise later samples will show, often in the course of a few hours, increasing acidity and a return, or increase, of pus, albumin, and bacilli in the urine, followed shortly by a rise in temperature. Litmus paper should never be used for testing the reaction of the urine. This can be estimated accurately, quickly, and easily in the following manner. Two or three drops of a 0.1 per cent. solution of brom-thymol-blue (two ounces of this solution may be conveniently kept for the purpose in a stoppered drop-bottle) are added to about 3 c.cm. of urine in an ordinary test tube, and the resulting colour compared with a series of standard colour tubes or disks.* It is only necessary to remember that (*a*) the specimen tested should be one passed before breakfast ; (*b*) it should be quite fresh and preferably still warm from the natural heat of the body ; (*c*) that only the gentlest motion should be used in mixing the dye and urine (violent agitation or even inversion of the tube will cause CO_2 to be taken up from the atmosphere and give too " acid " a reading) ; and (*d*) the test tube should be clean, and either first washed with distilled water or with tap water and then rinsed with a preliminary sample of the specimen to be tested. As the latter is always dilute, owing to the diuresis, the natural pigment of the urine does not interfere appreciably with the colour comparison, though if necessary this can be compensated for by holding a tube of the urine, without added dye, behind the standard colour tubes. At a *p*H of 7.6 the resulting colour should be a distinct dark blue, but at reactions less alkaline than this a greenish tint will become increasingly more evident. It is helpful to explain to patients who are sufficiently recovered to carry out this test for themselves that a *p*H of 7 on any of the standard scales corresponds to neutrality, consecutive numbers below this to increasing acidity, and above it to increasing alkalinity.

Technique of Dosage

In acute cases with severe symptoms it is necessary to increase the dosage rapidly. It has been found best to give by mouth a mixture of equal parts of sodium bicarbonate and potassium citrate, as large doses of the former alone tend to induce vomiting, whilst the latter in appreciable amounts may cause diarrhoea. By giving both salts in equal quantities these difficulties are avoided. I usually commence with the following mixture:

℞ Sod. bic. } ... ... āā gr. xxx
Pot. cit. }
Syr. aurantii ... ... ♏ xxx
Aq. ... ... ad ʒ jss

given either one-, two-, three-, or four-hourly, according to the urgency of the symptoms, and continued until the volume of urine passed is obviously increasing, and the reaction is sufficiently alkaline to brom-thymol-blue—that is, the *p*H is 7.6. At this point the dose may be reduced to three-, four-, or six-hourly, so long as the reaction of the urine does not fall below the required level. The dose which then maintains the early morning specimen of urine at this reaction is the optimum dose, and must be continued as explained later. With rare exceptions, in those cases where there is no mechanical obstruction to the flow of urine, a satisfactory diuresis of 60–70, or more, ounces, of urine per twenty-four hours and a sufficiently alkaline reaction is attained in about forty-eight hours. The urine is by then practically clear to the naked eye ; if not, then a little acid or household vinegar should be added to eliminate cloudiness due to the precipitation of phosphates, and the pyrexia and pain will have disappeared. Thereafter, by trial, the dose may be reduced to that which will just maintain a minimum *p*H of 7.6 in the early morning specimens of urine. The mixture should be given strictly to time and in acute cases through the night as well, even at the expense of disturbing sleep. In subacute and chronic cases at least one dose should be taken about 3 a.m., for which purpose an alarm clock may be provided. A slight increase of dosage is often called for when the diet is augmented, and especially when the patient first gets up and begins to walk. On these occasions it will usually be found that the urine has become slightly less alkaline and, if this be not corrected, a rise in temperature and a recrudence of symptoms will follow shortly. In early cases with intractable vomiting sodium bicarbonate may be given per rectum as a 3 per cent. solution until oral administration becomes feasible, though this is rarely necessary. Extra fluids may also be given per rectum in such cases. The total dosage of alkalis per twenty-four hours varies with every case and in the different stages of the disorder. In my own series the maximum dose in the acute stage has ranged from 240 to 1,100 grains per twenty-four hours. It is, however, rarely necessary to maintain the maximum dose for very long.

Difficulties of Administration

It cannot be denied that large doses of these alkaline salts, however flavoured, are unpleasant to take. Nevertheless I have never found it necessary to abandon treatment for this reason. Serious difficulty from this cause is only encountered in neurotic individuals who from long habits of indulgence are lacking in self-discipline, and such are notoriously susceptible to persuasion. In a protracted case it is sometimes wise to change the flavouring agent, and aqua menth. pip., with or without chloroform water, may be preferred. It is also a useful plan to add a teaspoonful of sugar to the mixture before taking it. Judicious spacing of the doses is a most important matter. To crowd the doses too closely or to give too strong a dose is to court disaster. The ideal is to spread the doses as evenly as possible through the twenty-four hours, though the greater number must inevitably be taken during the daytime. The total quantity of alkali in each dose should, however, be as small as possible. Thus it is better to prescribe drachm doses of alkali (30 grains of potassium citrate and of sodium bicarbonate) at two-hourly intervals through the day, beginning at 8 a.m., with one dose at 3 a.m. (total for twenty-four hours, 540 grains), than four doses of 135 grains (total alkali) and one similar dose at 3 a.m. A useful rule, therefore, is to increase the *number* of doses per twenty-four hours before increasing the *strength* of each dose. Since it is an advantage to encourage as large an intake of fluid per diem as possible there is no objection to diluting each dose, and this greatly diminishes the unpleasantness of the mixture. It is also advisable to ensure that the medicine is not swallowed at one gulp. At least ten minutes should be taken over each dose. Attention to such details as these may well make all the difference between success and failure.

Causes of Failure

By far the most frequent cause of failure is an insufficient dose of alkalis. In a straightforward case the major symptoms—pain, tenderness, rigidity, rigors, and vomiting—will have subsided within about forty-eight hours of the urine attaining an alkalinity of *p*H 7.6. The temperature, too, will have fallen approximately to normal. The urine, though still containing pus and

* At the cost of a few shillings suitable colour standards for the brom-thymol-blue range can be obtained in the form of tubes from the British Drug Houses Ltd. (B.D.H. capillator), or as coloured disks mounted on a card from Mr. George T. Gurr of Fulham, S.W.6.

bacilli on microscopical examination, should be practically clear to the naked eye, unless there be turbidity due to phosphates. In favourable cases the improvement is indeed dramatic. If, however, these results are not obtained within a week or ten days from the time the urine first reaches a *p*H of 7.6, and provided, of course, that this reaction has been steadily maintained, it is extremely probable either that the original diagnosis was wrong or that some complicating factor is present and is keeping up the infection. Of the latter, in my experience, the most frequent are renal or ureteric calculi, congenital defects of the ureter, plugs of inspissated pus and cellular debris temporarily blocking the ureters or ureteric orifices, chronic ulceration with consequent distortion of the renal pelves and calices, and incoordination of the neuromuscular mechanism of the renal pelvis, and of the vesical end of the ureters, as described by Hurst, Venables, and others. This last group I believe to be of more frequent occurrence than is usually supposed. But, whatever the cause, if an adequate response is not obtained as a result of treatment with alkalis within the period indicated it is important that time should not be lost, and at this stage it is wise to insist on further investigation by means of cystoscopy, ureteric catheterization, and possibly pyelography. I have seen the most serious consequences ensue from neglecting this rule and from procrastinating for any reason. I have the less hesitation in recommending this course from the knowledge that in the hands of an expert urologist the whole investigation can be carried out with very slight discomfort to the patient in his own home, unless pyelography be required, and without a general anaesthetic, which is usually both unnecessary and unwise. It may be objected that ureteric catheterization carries with it a danger of ascending infection. The risk is negligible, as under the circumstances for which the procedure is now advised there is already an infected tract on the defective side, whilst the unaffected is protected by an unusually copious stream of alkaline urine flowing down the ureter. There can be no doubt that the advantages to be gained by early urological investigation far outweigh the comparatively trivial, and largely theoretical, disadvantages.

After-care

When the patient has been up and about for some time on a normal diet cautious attempts may be made to reduce the dose of alkalis, but any return of pain, temperature, or turbidity of the urine must be met by a resumption of the former dose. Although the urine usually becomes quite clear to the naked eye in a very short time, microscopically a few pus cells, and especially bacilli, may persist in the urine for many weeks or months. It is important in such cases to continue with the optimum dose of alkali indefinitely, or until bacteriological investigations of catheter specimens of urine, repeated at intervals, give consistently negative results. In this manner alone is it possible to minimize the danger of relapses. I have had cases on 400, 500, and more grains of alkali per diem for periods of over two years in whom any attempt at reducing the dose was immediately followed by a return of signs and even symptoms. In the majority of cases, however, the infection dies out in the course of a few weeks or months.

Subacute and Chronic Cases

Although a considerable number of subacute and chronic cases are doubtless caused by inefficient treatment in the early stages strict alkali therapy should still be given a trial. If as a result an adequate response is not obtained in from ten to fourteen days of the urine attaining a *p*H of 7.6 then a complete urological investigation should be undertaken. Should no calculus, obstruction, or mechanical defect be revealed, chronic ulceration of the renal pelvis should be suspected, and in all probability the case is incurable. In this event prolonged alkali therapy may be used with advantage for the prevention of acute exacerbations. It is important, however, to remember that there is a group of cases with chronic *B. coli* bacilluria without pyuria or other signs or symptoms of any kind and in which no evidence of mechanical obstruction or deformity of the urinary tract can be demonstrated. Such people lead perfectly normal and healthy lives for many years, and in my opinion, after a negative investigation for structural defects has been obtained, they are better off without treatment of any kind.

Alkalosis

There is fortunately no danger of alkalosis in uncomplicated cases of pyelitis because renal function is intact, and, under the regime outlined above, the volume of urine is so large that excess of alkali is rapidly eliminated. In most cases, therefore, a preliminary estimation of the alkali reserve of the blood is not necessary. Where, however, there is reason to suspect that the latter is above normal, preliminary investigation should be made before treatment is begun. Alkalosis is likely to be met with in cases with copious and intractable vomiting which has been present for some days, or when for any reason there is marked and prolonged dyspnoea. Under such circumstances alkali therapy must be instituted slowly and with care. Similar precautions should be taken when pyelitis is associated with chronic nephritis, especially with nitrogen retention. Care is also required in elderly subjects with gross cardiac irregularities. I have never seen clinical alkalosis result from giving adequate doses of alkalis in uncomplicated cases.

Lower Tract Infections

Infections of the lower urinary tract with *B. coli*—that is, cystitis, urethritis, vaginitis, etc.—are only mentioned here as, if associated with pyelitis, the urine may continue to be turbid, and to contain pus, albumin, and bacilli, long after the infection of the upper urinary tract has cleared up. It is therefore essential that catheter specimens of urine be examined from time to time, and occasionally it is necessary to test specimens obtained by catheterization of the ureters. It is not unusual for treatment to be continued much longer than necessary from failure to insist on the occasional examination of catheter specimens.

Pyelitis of Pregnancy

Acute and subacute *B. coli* pyelitis in pregnancy presents certain features peculiar to this state. At least in the later months of pregnancy some element of mechanical obstruction is probably always present, and this, of course, tends to increase as pregnancy advances. If the obstructive factor be marked then alkali therapy must inevitably fail. This is proved by the fact that cases not responding to adequate alkali therapy immediately improve after the insertion of indwelling ureteric catheters or on the termination of pregnancy. In early pregnancy, when obstruction, if present at all, is minimal in degree, thorough treatment with alkalis is to be recommended. In the later stages of pregnancy, with marked and increasing obstruction, alkali therapy is of doubtful value. It is under these circumstances particularly that a ketogenic diet, or mandelic acid, would seem to be indicated. Incidentally, it is of interest to note that in pregnancy, unless complicated by chronic nephritis, there is even less danger of alkalosis from the exhibition of large doses of alkalis, for in this state the kidneys are unusually permeable to alkaline salts.

Ketogenic Diet

The only other methods of treatment which deserve serious consideration are the ketogenic diet and its much more convenient offspring mandelic acid. There can be no doubt that in expert hands remarkably good results are obtained in a high proportion of cases. They are the only methods which successfully strike directly at the root of the evil by inhibiting the growth of the bacilli *in situ*. It is with no desire to belittle their value that I venture the following criticisms. Both acid and alkaline therapy call for some fortitude on the part of the patient, and scrupulous attention to detail is essential for success with either method. The most serious disadvantage of the "acid" methods is due to the impossibility of continuing treatment for sufficiently long periods to prevent relapses. The relapse rate is unfortunately high, and in fact many of the cases I have seen in the past two years have already had this treatment and have later relapsed. The method apparently offers little safeguard for the future. However, it is probable that a thorough urological investigation of these cases would have revealed mechanical conditions which are not amenable to this or any other form of medical treatment. It has already been stated that in the successful treatment of *B. coli* pyelitis the two essentials are correct reaction and adequate volume of the urine, and that the latter is by no means the least important. In treatment with "acids"—that is, ketogenic diet or mandelic acid—quite apart from the disputed question as to whether acids themselves in sufficient concentration, and over long enough periods, cause actual damage to the kidneys, it is necessary to induce a small volume of urine in order to obtain a sufficient concentration of acid to inhibit bacterial growth. This is effected by a rigid curtailment of the fluid intake. I believe that this in itself is harmful in these cases, and seriously militates against the success of these two methods of treatment. More hopeful would seem to be the use of some substance perhaps allied to mandelic acid but effective in an alkaline or neutral medium. So far as I am aware such a substance has not yet been found.

Conclusion

Alkaline therapy, on the other hand, possesses several distinct advantages, for it can be continued indefinitely without harm to the individual or serious interference with the activities of a normal existence; it permits of a normal diet being taken, and, above all, it confers protection against relapses so long as it is conscientiously carried out. Nevertheless it is of little use in cases with increasing urinary obstruction, as in the later stages of pregnancy, or in cases in which mechanical deformities of the renal pelvis or ureters cause stagnation of urine. It is of doubtful value, therefore, in cases with chronic ulceration and scarring of the renal pelvis, neuro-muscular incoordination, or congenital anatomical defects of the pelves or ureters. Such cases can only be cured, if at all, by inhibiting the growth of the bacilli *in situ*, and it is in these cases, I believe, that the ketogenic diet or mandelic acid should be tried.

In conclusion, I would again emphasize the importance of adequate dosage and thorough and early urological investigation if medical treatment fails after, at most, two weeks' trial.

The method of treatment described was evolved during the course of investigations into the value of alkalis in the treatment of the various forms of Bright's disease, for which I received grants from the Medical Research Council and the Clinical Research Committee of Guy's Hospital. It is a pleasure to acknowledge my indebtedness to them.

CONTROL OF HAEMORRHAGE IN ENDOSCOPIC PROSTATIC RESECTION

WITH A NOTE ON CLOT RETENTION

BY

E. W. RICHES, *M.C.*, M.S., F.R.C.S.

ASSISTANT SURGEON AND ASSISTANT UROLOGIST, MIDDLESEX HOSPITAL; SURGEON, HOSPITAL OF ST. JOHN AND ST. ELIZABETH; CONSULTING UROLOGIST TO THE LONDON COUNTY COUNCIL

Haemorrhage in connexion with endoscopic resection of the prostate may be primary, reactionary, or secondary; in this operation primary and secondary haemorrhages are of more practical importance.

Primary Haemorrhage

Bleeding at the time of the operation can be a source of trouble in several ways. It obscures the operative field, necessitating frequent stoppages for lavage or coagulation, and thereby prolonging the operation unduly, or it may be so great as to compel the operator to stop altogether and resort to multiple sessions. It is also the most fruitful cause of accidents or mistakes, as was pointed out by Walker.[1] The actual blood loss is of itself rarely sufficient to produce serious exsanguination.

Excessive bleeding is to be expected from the resection of a large glandular prostate, especially one which has already given rise to haematuria, and if it were possible always to practise the operation which appears to be the best as judged by the local condition of the prostate these cases would be treated by suprapubic prostatectomy with closure, after the Harris technique. In discussing the selection of cases suitable for perurethral treatment the importance of the local condition of the prostate has been stressed by several writers.[2 3 4] On the other hand, we cannot always practise what would be the ideal operation on local grounds, because there are many patients in whom the general condition makes prostatectomy extremely hazardous, or even entirely out of the question. To be able to include, safely and adequately, the "bad risk" case within the scope of the operation of endoscopic resection we must have some means of controlling the primary haemorrhage, whatever the local condition of the prostate may be.

Method of Control

Just as bleeding from an abdominal incision can be lessened by infiltration with a local anaesthetic containing adrenaline, so the same effect can be produced in the prostate. The only special instrument required is the long needle* illustrated in Fig. 1, which has been made for me by the Genito-Urinary Manufacturing Company. This is introduced through the channel in the electrotome designed for the coagulating electrode or through a separate mounting. A mixture of local anaesthetic and adrenaline is prepared beforehand. After experimenting with various concentrations I now use 0.5 c.cm. of adrenaline (1 in 1,000) added to 9 c.cm. of percaine (1 in 1,000); this is distributed under vision into the lateral and middle lobes of the prostate. In a considerable number of cases 1 c.cm. of adrenaline was used, but observations on a series showed that this produced a considerable rise of blood pressure, accompanied by tachycardia and pallor, though the blood pressure always fell again within a few minutes of the start of actual resection. When 0.5 c.cm. is used the rise in blood pressure is much less and the other effects are not so

* The instrument has recently been modified by the substitution of a detachable needle of the Schimmel type for the fixed point illustrated.

marked, while there is no appreciable difference in the haemostasis produced.

The operation can be started at once, for the solution diffuses readily through the glandular tissue, and as resection proceeds it will be seen that the cut surface is blanched and bleeding is usually negligible. Any vessel which spurts can be readily coagulated, because it is not obscured by a general ooze from the surrounding tissue. The time spent in carrying out the infiltration is more than saved subsequently, as there is no delay between the cuts, and, what is more important, an adequate amount of tissue can be removed. This is probably the most potent factor in ensuring the success of the operation both in respect of the immediate relief of symptoms and in the permanence of the result.

I have now used this method of local infiltration more than fifty times, and the average weight of tissue removed per resection has been 6.9 grams ; in the previous fifty operations without infiltration the average weight removed was 2.9 grams ; in the last thirty cases with infiltration the average has been 7.7 grams. The fragments are weighed dry immediately after the operation ; the addition of a fixative such as formol-saline increases their weight. The fact that the average weight has been more than doubled is an indication that it has been possible to increase the scope of the operation by dealing with larger prostates by resection when desirable, and the immediate and complete relief of symptoms associated with a more adequate removal of tissue has been most striking. In five cases a second resection has been necessary. In one of these it was recognized that more than one resection would be required ; the patient was a feeble old man of 80 with auricular fibrillation, poor renal function, and a very large prostate ; there was 18 ounces of residual urine, grossly infected, and a stone in the bladder. After preliminary cystotomy an amount of 14.2 grams was resected, and four weeks later a further 10.4 grams, making a total of 24.6 grams. The suprapubic wound healed and he was restored to urinary comfort.

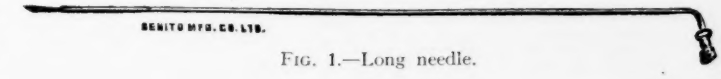

FIG. 1.—Long needle.

FIG. 2.—Syringe.

No chloroform must be used as anaesthetic if adrenaline is being injected.

Reactionary Haemorrhage

In many cases there is a slight increase in the amount of bleeding after the patient has returned to bed ; it is controlled by frequent irrigations, or occasionally by continuous irrigation through a two-way catheter as advocated by Loughnane. It has usually ceased by the second day, and haemorrhage starting on the second or third day is rare, despite the use of a low spinal anaesthetic, which has been condemned by some writers as predisposing to reactionary haemorrhage.[5] Low spinal anaesthesia after the technique described by Hasler[6] is simple, rapid, certain, of adequate duration, and has been remarkably free from complications. In over a hundred resections where this anaesthetic has been used there has been only one case of real reactionary haemorrhage.

A man of 56 developed acute retention of urine whilst coming from South Africa for the Jubilee celebrations. He had a moderate degree of glandular prostatic enlargement affecting mainly the middle lobe. Although not a true haemophiliac he came from a family of bleeders, and for this reason declined to consider prostatectomy. After catheter drainage resection was carried out under low spinal anaesthesia. Local infiltration of 4 c.cm. of 1 in 1,000 percaine with 1 c.cm. of adrenaline was used ; bleeding was slight during the operation and 9.1 grams of tissue were removed. After forty-eight hours there was severe haemorrhage leading to clot retention ; this was relieved in the manner to be described, and subsequent progress was uneventful. He went out on the twelfth day with less than an ounce of residual urine.

Secondary Haemorrhage

Bleeding occurring from the fourth to the tenth day is usually secondary, and due to infection. Its danger lies not in the blood loss but in the possibility of clot retention, of which an excellent description has been given by Doyle and Feggetter.[7] The liability to secondary haemorrhage does not appear to be increased by the use of local infiltration, for in fifty resections in which this method has been used it occurred six times, whilst in the previous fifty cases without infiltration it occurred eight times. It should be treated by hot lavage and the administration of haemoplastin, and morphine where this is not otherwise contra-indicated, combined with complete rest. I prefer to use sodium citrate, 2 per cent., for lavage, in order to prevent clot formation.

Clot Retention

This is one of the most serious complications of the operation. In the series quoted by Doyle and Feggetter it occurred in seven cases out of 150, and was the cause of death in six of them. Millin[8] reports having to open the bladder for clot retention in six cases out of nearly 250. I had six cases of clot retention in 100 resections, with one death which was largely due to it. It may follow primary, reactionary, or secondary haemorrhage, and its prevention demands adequate control of bleeding at the time of operation, rest and lavage in the immediate post-operative period, and the prevention of infection throughout. Inadequate removal of tissue leads to incomplete emptying of the bladder after the catheter is removed ; this aggravates any existing infection, so that secondary haemorrhage is more likely. Oedema of the bladder neck is inoperative as a cause of incomplete emptying if sufficient tissue has been removed. Atony of the bladder is occasionally a cause of incomplete emptying, and I have had one case in which secondary haemorrhage and clot retention followed such a condition.

The accepted methods of treatment once the condition of clot retention is established are:

(*a*) Evacuation of the clot with an aspirator, with or without the preliminary use of a lithotrite to break it up.

(*b*) Suprapubic cystotomy.

It is essential to empty the bladder, when its contraction will do much to stop the bleeding. The first method involves repeated instrumentation, which the patient may be ill fitted to withstand, and the second involves another operation and the prolongation of convalescence associated with an open bladder. There is a third method, which was first suggested to me by Mr. W. Sampson Handley ; it is to break up the clot by the injection through the catheter of pepsin and hydrochloric acid, and it can be remarkably successful. Various amounts and concentrations have been tried, and the best results have followed

the injection of one ounce of glycerin of pepsin* (full strength); the catheter is closed and left so for half an hour. When the spigot is removed the blood-stained fluid usually flows out, and any remaining clots can be withdrawn by suction with an efficient bladder syringe. The type of syringe is important; it should have a properly fitting plunger and a glass barrel. The Genito-Urinary Manufacturing Company have copied for me a French pattern, which is illustrated in Fig 2. The piston is made of virgin silver and the barrel of pyrex glass, and with this syringe it is possible to apply very strong suction and to see its results in the shape of pieces of clot mixed with the withdrawn fluid. A cheaper model with a fixed nozzle is made for ward use as a routine bladder syringe, and is equally effective. It is sometimes necessary to repeat the injection of pepsin, but once the bladder is empty the bleeding can usually be controlled by hot irrigations and the administration of morphine and haemoplastin.

* Glycerin of pepsin, 1914 *B.P.*, contains 10 per cent. of pepsin and 1.15 per cent. of HCl.

Summary

1. Excessive primary haemorrhage is the chief source of difficulty in endoscopic resection of the prostate, and leads to inadequate removal of tissue. It can be minimized by the local infiltration of the prostate with a solution containing adrenaline.

2. Secondary haemorrhage from infection is likely to follow incomplete emptying of the bladder due to inadequate removal of tissue; it may lead to clot retention.

3. In the event of clot retention an attempt should be made to break up the clot by the injection of pepsin. Only if this fails is it necessary to open the bladder.

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INDICATIONS FOR SURGERY IN SEVERE BELL'S PALSY

BY

A. TUMARKIN, F.R.C.S.ED.

Permanent deformity after Bell's palsy is generally believed to be rare. This is unfortunately not so. Duel[1] states that fully 20 per cent. of cases do not recover completely, and there can be no doubt that his view is correct. Naturally the degree of residual palsy varies, but the most superficial examination of a group of cases will convince any investigator that some deformity persists in a considerable percentage of cases. Permanent facial palsy in a working-man may not be a very serious matter, but in a sensitive young woman its effects may be serious. Nerve grafting in the late stages of such a case is not likely to be a satisfactory procedure, for obvious reasons. It is far better to decompress the nerve in the early stages.

Recovery after Decompression

Recovery after such an early decompression is not a matter of months or even weeks. Improvement can be detected within a few hours of operation, and may be complete in a few days. Tempea,[2] who operates under local anaesthesia, states that the patient may actually feel the improvement on the operating table. One of my own cases showed definite improvement within thirty-six hours, and was completely cured in three days. I need not stress how gratifying such a dramatic recovery can be. Nevertheless, the operation of facial decompression is not lightly to be undertaken. To recommend it as a routine procedure in the early stage of Bell's palsy would be fantastic. Thus the problem arises: Is there a criterion whereby we may decide in the early stage that a given case is unlikely to recover?

In an attempt to discover such a criterion the problem was approached from a statistical standpoint. We sent out a questionary to 133 patients for information as to their early symptoms, degree of recovery, and so forth. We received sixty-seven replies, of which only fifty-one related to true Bell's palsy. Of these no fewer than twenty-six said they were not completely cured. Let us admit that most of those who did not reply were cured. Let us exclude another eight failures that were of less than eighteen months' standing. There still remain eighteen failures in a series of about 100 cases.

Analysis of Symptoms

An analysis of the symptoms in these cases showed that pain and loss of taste were of grave prognostic significance. Vertigo, hyperacusis, rash, pyrexia, and so on were of much less importance. The following comparison between the twenty-five cures and the eighteen failures will make this clear.

Cases	No Pain, No Loss of Taste	Pain, but No Loss of Taste	No Pain, but Loss of Taste	Pain and Loss of Taste
25 Cures ...	18=72 per cent.	4=16 per cent	2=8 per cent.	1=4 per cent.
18 Failures	2=11 „	6=33 „	4=22 „	6=33 „

Stated simply it may be said that if the patient has both pain and loss of taste the chances are 2 to 1 that he will not recover; but if he has neither of these symptoms the chances are 25 to 1 that he will recover. Less importance is to be attached to the presence of only one of these symptoms.

The site of the pain varied considerably, as did also its severity; it was rarely a true otalgia. More commonly it was referred vaguely to around the ear, or to the vertex, or even down the shoulder. The loss of taste was very marked. One patient accused his wife of poisoning him, as all his food tasted oily. It is very desirable that these investigations should be repeated, and in particular patients should be under close observation from the outset, so that the progress of their nerve reactions can be watched. If confirmation of the above figures is obtainable I believe we shall have gone far towards the solution of this problem.

Nerve Viability

The potential value of such a rule as I have stated is well brought out by two cases described by Sanders,[3] in which the inexorable progress of the paralysis compelled him to operate. Each patient spontaneously complained of pain and loss of taste. Thus the application of the rule would have justified him in operating much earlier than he did. The value of early operation should need no stressing. An interesting point, however, arises out of one of Sanders's case histories. He states that this patient had a definite reaction of degeneration for four days before he operated. Nevertheless improvement was apparent within six hours of the operation. If this is correct we must believe that the nerve is still viable even in the

presence of a reaction of degeneration, at any rate in the early stages. The importance of this is clear. While willing to advise decompression in the early stage of a Bell's palsy, one has been more reluctant when this reaction has developed, on the grounds that there was no prospect of immediate recovery. We may now be entitled to take a more optimistic view, if confirmation is obtainable.

Summary

1. Permanent deformity after Bell's palsy is far commoner than is generally realized.

2. In a young, sensitive woman its effects may be so serious as to justify operation.

3. Up till now it has been impossible to advise operation owing to our ignorance as to the prognosis in any given case.

4. A criterion is proposed for such cases, and indications for further research into the problem are outlined.

My grateful thanks are due to the various colleagues who allowed me access to their files, and also to Miss Margaret Frank, without whose enthusiastic co-operation this laborious questionary could not have been compiled.

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"DEROTATION" OF THE TIBIA

BY

ROBERT I. STIRLING, M.B., CH.B., F.R.C.S.ED.

ASSISTANT SURGEON, ROYAL HOSPITAL FOR SICK CHILDREN, EDINBURGH

The operation which is sometimes called "derotation of the tibia" is principally indicated in two types of case:

1. Cases of congenital club-foot in which the associated medical rotation of the distal tibial diaphysis has not been sufficiently corrected during the manipulations carried out on the deformed foot.

2. Cases of fracture of the bones of the leg where union has taken place with too much external or internal rotation of the distal part of the leg.

The usual operative procedure adopted is either osteoclasis or by open osteotomy. After the tibia has been broken or sectioned, the leg is put up in the correct position and is enclosed in a plaster case until union has taken place. This method is almost invariably successful in children, but when applied to malunited fractures in adults is followed sometimes by delayed union or non-union—probably because the vascularity of the bone is not normal. In order to minimize the likelihood of this unfortunate result, the following operation was devised some years ago, and proved so successful that I have used it since as a routine measure for "derotating" all tibiae. It is possible that this operation, or one similar, has been described before, because the principles are so obvious, but if it has I have not seen any reference to it. Briefly, the operation consists in making an oblique subperiosteal fracture of the tibia and setting it in the desired line.

The Operation

A longitudinal incision is made over the medial surface of the tibia, and the skin and subcutaneous tissues are dissected up and retracted so as to expose the periosteum covering the bone. A flap of periosteum (Fig. 1) is outlined, and is elevated from the medial and lateral surfaces of the tibia, some bone slivers being left attached. A series of drill holes is now made through both cortices of the tibia, passing from the front to the back. The gauge of the wire twist drill used depends on the size of the tibia to be perforated. With a small child size 33 is large enough, but with an adult size 16 is more satisfactory. Usually about eight to ten holes are sufficient. The points of entrance make a straight line downwards and inwards or downwards and outwards, according to whether it is desired to rotate the foot outwards or inwards (Figs. 2 and 3). It is not necessary to strip the periosteum from the posterior surface of the tibia or put in any shield to protect the tissue behind, as tactile sensation gives ample warning as to when the point of the drill is about to complete the penetration of the posterior cortex.

When the holes have all been drilled their points of entrance through the anterior cortex are joined by cuts with a thin-bladed osteotome, and the cortex of the lateral surface of the tibia is sectioned at the upper or lower end of the line, according to whether lateral or medial rotation is required. The foot and lower part of the leg are then rotated vigorously, laterally or medially as the case may be. This leads to a gaping of the drill–osteotome cut in the anterior cortex (Figs. 4 and 5), and twisting, or bending without separation, of the posterior cortex, which is sufficiently weakened by the drill perforations to enable this bending to take place.

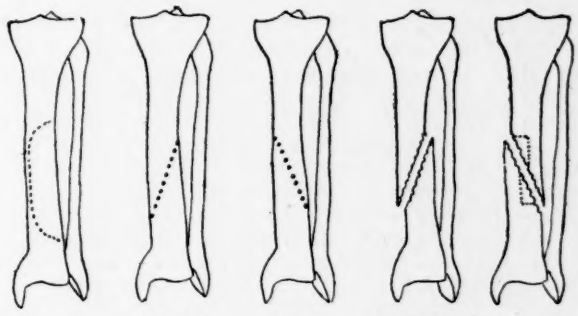


FIG. 1. FIG. 2. FIG. 3. FIG. 4. FIG. 5.

To ensure that the parts do not return to their former position, two small wedges are cut with a chisel or osteotome from the neighbouring bone, as indicated by the dotted lines in Fig. 5, and are jammed into the gap in front. The periosteal flap is then sutured back into position. This may necessitate the making of longitudinal relief incisions in the periosteum covering the crest of the tibia. It is highly desirable that the gap should be covered by the periosteum, for then a closed haematoma is produced, and bone formation quickly follows. In a very few cases transverse osteotomy of the fibula, at the junction of the middle and lower thirds, is indicated. The skin is sutured with catgut, and a plaster cast is applied over sterilized stockinette. In the adult, union is generally firm by the end of six or eight weeks, and in a child in four to six weeks. No special treatment is required after the plaster cast is removed.

The ninth Congress of the French Paediatric Association will be held at Bordeaux, from May 28th to 30th, under the presidency of Dr. C. Rocaz, when the following subjects will be discussed: epidemiology and pathogenesis of infantile acrodynia, introduced by Dr. Péhu of Lyons; insulin treatment in the child, introduced by Drs. Aubertin of Bordeaux and Lelong of Paris; dystrophic disorders of the thorax, introduced by Drs. Lévêque, Ombrédanne, and Garnier of Paris. French or foreign members of a paediatric society may take part in the congress on payment of a subscription of 100 francs. Further information can be obtained from Dr. Boisserie-Lacroix, 27 bis, Cours Xavier Arnozan, Bordeaux.

Clinical Memoranda

Spontaneous Rupture of a Pregnant Uterus and Subsequent Atrophy of Fibroids

As the opportunity of observing atrophy of uterine fibromyomata does not occur very often the following case notes may be of interest.

CASE REPORT

I first saw the patient, a married woman of 38, on October 20th, 1934, when a diagnosis of four months' pregnancy, complicated by fibroids, was made. There was a fibroid the size of a golf ball projecting into the pouch of Douglas at about the level of the internal os and another about twice that size high up on the right of the fundus. The woman was the mother of three children, the youngest being 12 years of age, and all her confinements had been normal. On November 11th I found her complaining of lower abdominal pain and low backache, which had been present for a week. The pain was constant, not colicky, and had become worse during the past two days and much more severe six hours previously. This exacerbation of pain was followed by vomiting for the first time since the onset of the pain. There had been twenty-one weeks' absolute amenorrhoea till four days ago, when she had had a mild vaginal loss of blood. For the past three days she had had difficulty in commencing micturition, with an increased frequency.

On examination her temperature was 97.8° F., pulse 120; her colour was good and the tongue was clean and moist. The abdomen was distended and there was generalized moderate rigidity, and tenderness most marked in the lower abdomen. The uterine fundus with its fibroid was palpable just below the umbilicus. Another larger, tender projection, about the size of a fist, was palpable half-way down on the right of the uterus; attempts to move the uterus caused considerable pain. There was some shifting flank dullness, and, per vaginam, the os admitted the tip of the index finger. There was marked tenderness in both lateral fornices, and the pouch of Douglas felt boggy. Four hours later, after a short ambulance journey, the clinical picture had changed. The patient was now blanched, the pulse had increased to 160, and the abdomen was more distended and more tender. There was marked dullness in both flanks, and the patient was suffering considerable generalized abdominal pain.

FIRST OPERATION

On opening the abdomen under ether anaesthesia the peritoneal cavity was found to contain blood clots and much free blood, three pints of which were collected and citrated. On exploring the abdomen the uterus was found to be about the size of a five-months pregnancy and, in addition to the previously mentioned fibroids, was studied with multiple small fibroids varying from the size of a pea to that of a walnut. Both tubes and ovaries were normal, as were the liver and spleen. The uterus was then packed off and carefully swabbed, when a ragged rupture about one-third of an inch in diameter was found between two opposing fibroids, each the size of a small walnut, low down on the left side of the posterior surface. Venous blood was leaking rapidly from the rupture. As suture alone of the rupture would be useless, and as the general condition of the patient was giving great anxiety in spite of auto-transfusion, Caesarean hysterectomy was out of the question, and so Caesarean section was performed. The resulting uterine contractions enabled the rupture to be sutured satisfactorily. The abdomen was closed and two pints of intravenous gum saline were given. Twenty-four hours later the patient developed an acute dilatation of the stomach, which responded to gastric lavage and atropine. Her subsequent recovery was uneventful.

SECOND OPERATION

On October 10th, 1935, I had occasion to reopen the abdomen for acute appendicitis. The abdominal contents were free from adhesions, and to my surprise the uterus, which had literally bristled with fibroids a year ago, was now normal in size, and the only fibroids visible were the pedunculated fibroid of the fundus, now less than half its original size, and a small intramural fibroid. In addition to the Caesarean section scar there was a dimple visible at the site of the perforation, but the adjacent fibroids, which had caused the rupture, were not to be seen. They could be felt in the uterine wall and appeared to be about one-third of their original size. Four other small fibroids could be felt in different parts of the uterus. The cervical fibroid felt at the first examination and confirmed at operation had practically disappeared, and of the numerous other fibroids no trace could be discovered.

The interesting feature of this case is that the atrophy of the fibroids had occurred before there were any appreciable symptoms of the onset of the menopause. The patient's menses, apart from becoming a little scantier during the past three months, were regular and otherwise normal. She had been gaining weight steadily during the past two years, which coincided with an acquired liking for stout, but there were no other symptoms suggestive of an approaching menopause.

Nuneaton. E. YULE, F.R.C.S.Ed.

Histidine Treatment of Peptic Ulcer

During the past nine months I have submitted all suitable cases of peptic ulcer which have come under my care to a course of histidine injections. "Suitable cases" are those with no mechanical obstruction, recent bleeding, or suspicion of malignancy, and in all cases the presence of the ulcer was proved radiologically. Excluding patients who have only recently presented themselves for treatment, I have records of eighteen cases. The results are as follows.

Two cases: Very doubtful relief and ulcer still present.
Four cases: Considerable relief and ulcer still present.
Three cases: Almost or entirely symptomless, ulcer detectable but smaller.
Nine cases: Free from symptoms and no evidence of ulcer radiologically.

The following is the history of a typical case which responded to histidine treatment.

CASE REPORT

A patient, aged 42, had a typical history of gastric ulcer for seven years; no haematemesis, and during the past year remissions of not more than ten days. An *x*-ray taken on October 14th, 1935, showed a large ulcer on the lesser curve with local tenderness on screening. A normal but sensible diet was allowed, and alkali treatment was suspended. Twenty-five "larostidin" injections were given, and an *x*-ray on January 13th, 1936, showed no evidence of ulcer, and no local tenderness could be detected under the screen. The patient had gained 6 lb. in weight, and after the first five injections had been entirely free from dyspeptic symptoms.

It seems astonishing that a large gastric ulcer should disappear within two months, and I would emphasize that both the radiologist and myself were sceptical regarding histidine treatment, and therefore the radiological and clinical examinations were conducted in the most exhaustive manner. It is, of course, too early to pronounce a cure, as the ulcer diathesis is still present. However, the results of this ambulatory treatment with merely restricted diet and occasional alkali treatment to relieve symptoms compare favourably with the results obtained after a rigid course of orthodox "medical" treatment.

I feel that the possibilities of histidine injections should be further explored, and I publish this short series of cases in the hope that others will give this method a trial, as only by an accumulation of statistics from various sources can its true value be assessed.

R. J. MCNEILL LOVE, M.S.Lond., F.R.C.S.Eng.,
London, W.1. Surgeon, Royal Northern Hospital, etc.

Reviews

RADIOLOGY OF THE HEART

No branch of radiology requires more familiarity with exact anatomy and pathology than the radiology of the heart. For this reason knowledge of the radiographic appearances of the heart in health and disease has not shown the swift advances made in the study of other systems by this means. Cardiologists, who have mostly been alive to the importance of the *x*-ray in diagnosis, have gradually sketched the outlines of radiography as applied to the heart and aorta, and they are swiftly filling in the details. Still, much remains to be known, and problems not only of mensuration but also of topography in oblique views specially await solution. Dr. POLEVSKI, in his recent monograph *The Heart Visible*,[1] has given a lucid description of the radiological methods that are applicable to the heart, and the results that may be obtained from them. The preliminary chapter on the influence of extracardiac factors is probably one of the most important in the volume, since it explains many of the more common errors made in the interpretation of *x*-ray appearances given by the normal or abnormal heart. It is illustrated by many good reproductions of films showing variations in the configuration of the heart as affected by the build of the patient, the presence of pulmonary disease or of thoracic deformity, and such external factors as retrosternal goitre.

In his chapter upon deviations from the normal heart size, Dr. Polevski ventures with no lack of confidence upon uncertain ground. Assertions are made without adequate justification upon matters that many would regard as highly controversial. For example, no unanimous agreement would be found with the statement that "there is no doubt that some so-called idiopathic dilated hearts that are difficult of explanation may be traced to a long-forgotten diphtheria or other severe infection, such as scarlet fever or pneumonia." There can be no doubt that cardiac enlargement as determined by radiography may relate to no obvious cause, and presumably some such examples are grouped by the author under the mystic term "myocardial degeneration." Whether this designation is meant to imply fibrotic changes consequent upon coronary sclerosis or some occult deleterious change in the parenchyma of the heart is not stated, but whatever is meant an exact description of the radiological findings is given. This portion of the work is far from convincing, especially when, in contrast to the rather dogmatic statements upon debatable matters, only a passing reference is made to hypertension as a cause of left ventricular enlargement, and no mention made of the important fact that such enlargement is quite unrelated to the grade of hypertension that exists or its duration.

Dr. Polevski has given an interesting discussion on the radiology of the aorta. He has brought out well the natural relation between the vertical tangents of the right auricle and the ascending part of the aortic arch in the antero-posterior view, and the manner in which the latter passes into line with, and finally lateral to, the former, when dilatation of this part of the aorta develops. Good diagrams and *x*-ray photographs are provided to illustrate these features, and the gradual downward encroachment of the aortic shadow upon that of the right auricle. In the discussion on luetic aortitis, the author conforms to the general view that in this condition the density of the aortic shadow surpasses that of the left ventricle, contrary to the usual relationship, and that the density of the vessel is great enough to obscure the shadows of the vertebrae that normally are visualized through it. No sufficient emphasis has been given, however, to a very important principle in the radiological diagnosis of syphilitic aortitis—namely, loss of parallelism of the walls of the vessel, a variation that is not found in the arteriosclerotic aorta. Dr. Polevski has made a sincere and successful effort to reduce to a reasonable compass and as simple a form as possible present-day knowledge of the radiology of the heart and great vessels. He has produced a work that must clarify many matters to those unversed in the radiological examination of the heart, and one which the cardiologist and radiologist must find stimulating. He is further to be congratulated upon the very satisfactory reproduction of valuable illustrative radiographs, 122 in number.

[1] *The Heart Visible. A Clinical Study of Cardiovascular Roentgenology in Health and Disease.* By J. Polevski, M.D. Philadelphia: F. A. Davis Company. (Pp. 207; 122 figures. 5 dollars net.)

HIGH BLOOD PRESSURE

In the study of disease, as in other studies, it is the exceptional rather than the commonplace that is apt to excite interest and to engage attention. Indeed the attractive word "research" is sometimes claimed as a monopoly of those who cultivate the investigation of problems new and strange. Yet there is something to be said for a critical examination of the frequent and the familiar, and ears of corn may sometimes be gathered even from well-gleaned fields. Further, what is oft repeated offers correspondingly frequent opportunities for observation. It is in such considerations as these that the reader will find a justification, in principle, of the appearance of Dr. H. O. GUNEWARDENE'S book with the title *High Blood Pressure and its Common Sequelae*.[2] The study is based on a clinical experience which includes several hundred patients, and many of these have been examined at intervals over a period of years. This industrious task has yielded results which, though neither particularly novel nor inspiring, are valuable in the sense that they confirm the observations made, perhaps on a less extensive scale, by most practitioners who are accustomed to the practice of the sphygmometer.

It may be noted that in Dr. Gunewardene's view "lack of exercise" rather than "overeating" is largely responsible for the occurrence of hyperpiesia, and that "heredity and diathesis" are of little moment; also that with other writers he attaches great significance to the diastolic reading. Indeed, here he claims that if this reading exceeds the 90 figure the condition must be regarded as abnormal, while with a diastolic record of 115 or upwards a definite risk of cerebral haemorrhage must be contemplated whatever be the systolic level, although a less gloomy prospect applies to these events when they are observed in women patients. To the theoretical aspects of blood pressure the book gives but scant attention; such themes as the essential cause of high readings in patients free from other evidence of disease, and the occurrence of this combination in young adults, are not much discussed.

In successive chapters arteriosclerosis, chronic nephritis, and acute oedema of the lungs are presented as "complications" or "sequelae" of high blood pressure, but the argument is hardly a conclusive one; there still presents itself the debatable question, Which came first, the hen or the egg? Dr. Gunewardene quotes freely from other writers, and records in detail, even in superfluous detail, some of his own clinical experiences. These experiences, being extensive, are worthy of attention,

[2] *High Blood Pressure and its Common Sequelae.* By Hugh O. Gunewardene, M.B., B.S., D.M.R.E. London: Baillière, Tindall and Cox. 1935. (Pp. 172. 7s. 6d.)

but they hardly add to our knowledge of blood pressure, and for our own part we should say that the most serviceable part of the book is in the chapters that deal with treatment. Here are discussed in a strictly practical fashion the remedies, numerous but not triumphant, with which high sphygmometer readings continue to be assailed.

PROBLEMS OF LIVER DISEASE

In one of the useful series of handbooks for practitioners published in German, Professor F. ROSENTHAL has brought together the essential facts relating to diseases of the liver and biliary tract.[3] The functions of the liver in physiological and pathological states are described; but only those tests of liver function which are of proved applicability in clinical work are admitted. The information to be drawn from them is critically examined. The general symptoms and signs of liver disease are discussed, the main emphasis being laid on the presence or absence of jaundice. Modern views are accepted on the change the liver cell exerts on bilirubin during its excretion into the biliary passages. The special part describes briefly but adequately the various forms of liver disease. In this the slighter and severer forms of acute diffuse liver disease are ranged in one series, with so-called catarrhal jaundice or simple icterus at one end and acute yellow atrophy of the liver at the other. Chronic diffuse liver inflammations, the various forms of cirrhosis, are differentiated from those forms of change in size and structure of the liver due to congestion, or tumours and new growth. Each part follows customary lines, but is written with a clarity and precision that is excellent. The anatomy, physiology, and investigation of the biliary passages are then considered, and the diseases which affect them. Nothing is omitted, nothing overdone. The book is a model of clear statement of present-day problems of liver disease, and will appeal to all who can follow a simply expressed and well-written German textbook.

AN INTRODUCTION TO HUMAN ANATOMY

Dr. CLYDE MARSHALL of Yale University has succeeded in producing a new elementary textbook on human anatomy.[4] It is well and concisely written, and includes, in addition to the purely descriptive text, short notes on the functions of organs and references to the practical bearing of anatomical facts, which add much to its general interest. A special feature of the work is the numerous excellent illustrations, which have been well selected from the best textbooks of anatomy and histology. In these the details of the drawings have been very clearly indicated by the names printed in full, and in English, at the side of each figure.

The general accounts of the central and sympathetic nervous systems and of the ductless glands are admirable, but the description of the peripheral nervous system, vascular systems, bones, joints, and muscles is too short for the book to be of adequate value for students who are preparing for medical examinations of the standard required by the universities. The book should prove useful to intending students of medicine, nursing, and massage, but is not sufficiently detailed to replace the well-known works on anatomy and histology which are in use at the present day. The narrative as a whole is commendably concise and reliable, and there are remarkably few mistakes. Only two exceptions to the general accuracy and reliability of the book need be mentioned: in the description of the flexor digitorum sublimis no allusion is made to the important origin of the muscle from the humerus and ulna, and in the illustration (Fig. 40A) its tendons are shown inserted into the first instead of into the second phalanges; moreover, the brachio-radialis muscle is said to arise from the lateral epicondyle of the humerus, whereas its true origin is well above the condyle from the upper two-thirds of the epicondylar ridge. Speaking generally, the nerve supply of muscles and the cutaneous distribution of the nerves are not given in sufficient detail. The book as a whole, however, well fulfils its primary purpose—namely, an introduction to anatomy—and it appears to be a sincere attempt to provide the essentials of a very large subject without obscuring the fundamental facts by too much detail.

SHORT-WAVE DIATHERMY

Néodiathermie à Ondes Courtes,[5] by BORDIER and KOFMAN, is a small book giving a concise account of the physical properties of, and apparatus for producing, those electrical oscillations in the electro-magnetic scale which are known as short waves. In their preface the authors point out what is often overlooked—namely, that the therapeutic use of short waves is not a new discovery, but is really the outcome of d'Arsonval's pioneer work on high-frequency currents. They feel that the term "darsonvalization" ought to apply to treatment by electrical oscillations, whatever their wave-length or position in the electro-magnetic scale.

The first part of the book is mainly concerned with the technical side of short-wave diathermy, describing the different stages in the development of suitable apparatus and the instruments now available for clinical use. Of the three-electrode valve, which is the essential feature in most types of apparatus, the authors naively remark that the durability of the lamp, as of other working mechanism, is not infinite, and that it is prudent to avoid excessive voltage. Two methods of measuring wave-frequency are given; one by Dufour's oscillograph, which is extremely accurate and which depends for its action on the property cathode rays have of being deflected by a magnetic field, and the other by a convenient but less accurate wave-meter.

The physical properties of short waves and their biological effects are reviewed in Part II. The remaining twenty pages, less than a fifth of the book, are concerned with the therapeutic application of short-wave diathermy, and for the most part the cases cited are those of other authors. It is difficult to ascertain whether the results claimed have occurred in isolated instances or have been confirmed in large groups of patients. Referring to the treatment of cryptorchids the following rather startling statement is made (page 129): "A few treatments suffice to make the testicles descend and evoke in them a remarkable development." During treatment, however localized, of any part of the body, a recumbent position is always advised, for it is easier to obtain the desired heating effect in this than in any other position. Advocating this, it is contradictory to include among the illustrations a photograph (Fig. 31) which shows a boy undergoing treatment of his left knee while sitting in a strained position with his heels off the ground.

As Dr. Bordier and Dr. Kofman's book is written more from the standpoint of technical physics and laboratory experiment than from the clinical side, its interest will be for the specialist rather than the general physician.

[3] *Krankheiten der Leber und der Gallenwege*. By Professor Dr. F. Rosenthal. *Fachbücher für Ärzte*. Band XVI. Berlin: J. Springer. (Pp. 216; 6 figures. RM. 18.80.)

[4] *An Introduction to Human Anatomy*. By Clyde Marshall, M.D. Philadelphia and London: W. B. Saunders Company. 1935. (Pp. 385; 252 figures, 14 in colour. 10s. 6d. net.)

[5] *Néodiathermie à Ondes Courtes*. By Dr. Henry Bordier and Dr. T. Kofman. Paris: J. B. Baillière et Fils. 1935. (Pp. 139; 57 figures.)

Notes on Books

The instalment of the *Annals of Medical History*[6] for September, 1935, leads off with Dr. E. W. Goodall's analysis of the epidemiological work of Guillaume de Baillou, or Ballonius, of Paris in the sixteenth century, whom he compares with Sydenham; among the notes attached to this interesting paper there is one on the first use, by Nicolas Massa in 1540, of the familiar phrase "epidemic constitution." Professor George Dock writes critically on the first French translation, by Roziere de la Chassagne in 1770, of Leopold Auenbrugger's famous *Inventum Novum ex percussione* (1761). The nature of the disease in the newly born called "the morgellons" by Sir Thomas Browne and described by others as worms, hairs, crinons, or comedones, is discussed by Dr. C. E. Kellett with a wealth of learning, which incidentally provides a date for the writing of Browne's "Letter to a Friend," in which this disease is mentioned. The history of the treatment for gonorrhoea is divided by Dr. H. L. Wehrbein into several periods: in the first up to 1500, practitioners were expected to do something, and lived up to it and tried not to do any harm; in the next two hundred and fifty years the disease was mixed up with, and regarded as part of, syphilis; then for eighty years there was a struggle to isolate it from syphilis, and of the advances of the last hundred years the author is somewhat pessimistic. Dr. E. Andrews of Chicago traces the history of the technique of herniotomy, the first real knowledge of hernia surgery beginning in Rome, "which added nothing to the science, but took it over fully developed from the Greeks." The early medical magazines in America, starting from *The Medical Repository* in 1797, are discussed by Mr. H. B. Shafer, and Dr. J. Walsh's account of Galen's writings continues on its course.

The fourth volume of the fifty-fifth series of *International Clinics*[7] consists of two parts, devoted to medicine and surgery respectively. The medical part contains eight papers, dealing with observations on the tongue, idiopathic steatorrhoea, aleukaemic leukaemia, anaemia in pregnancy, the use of bacterial vaccines, the nature and meaning of functional disease, therapeutic argyria, and the treatment of diabetes mellitus. The following six subjects are discussed in the surgical part: treatment of acute empyema, congenital cystic disease of the lungs, hysterical contractures, hour-glass contraction of the stomach, management of peripheral arterial disease, and lymphogranuloma inguinale.

Dr. R. E. LIESEGANG, in his little book The A B C of Colloids for Medical Men,[8] gives a short account of the importance of colloids in medicine. He points out that the body tissues are a colloidal structure, and that a knowledge of the properties of colloidal systems is essential for the understanding of the functions of the body in health and in disease. The author is a well-known authority on colloidal chemistry and he has succeeded in giving a short, clear, and easily understandable account of the rudiments of a very difficult subject.

We have received the bound volumes of the Minutes of the General Medical Council and of its various committees for 1935, complete with thirteen appendices (vol. lxxii); also the general index to the minutes of the General Medical Council, the Executive and Dental Executive Committees, and the English, Scottish, and Irish Branch Councils for 1903–35 (vols. xl to lxxii). Both volumes are published and sold for the General Medical Council by Constable and Co., Ltd., 10, Orange Street, Leicester Square, W.C., and the prices are 12s. and 10s. respectively.

[6] *Annals of Medical History*. New series, vol. vii, No. 5. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber, Inc.; London: Baillière, Tindall and Cox. (Volume of six numbers, £2 15s.; single numbers, 12s. 6d.)

[7] *International Clinics*. Vol. iv, Forty-fifth Series, 1935. Edited by Louis Hamman, M.D. Philadelphia and London: J. B. Lippincott Company. 1935. (Four volumes, quarterly, 50s. net.)

[8] *Kolloid-Fibel für Mediziner*. By Dr. Raphael Ed. Liesegang. Dresden and Leipzig: T. Steinkopff. 1936. (Pp. 33. RM. 1.)

NATIONAL RADIUM REPORTS

WORK OF THE COMMISSION AND CENTRES

The sixth annual reports of the National Radium Trust and the Radium Commission have been published together this week, five months later than usual. The report of the Trust and the financial statement relate to the twelve months ended March 31st, 1935, and that of the Commission to the twelve months ended July 31st, 1935. They are issued as a Command Paper of 34 pages, with a map showing the disposition of radium centres throughout Great Britain. The following changes took place in the membership of the Trust: Dr. Robert Hutchison succeeded Mr. Warren Lowe as President of the Royal Society of Medicine, and Dr. S. Watson Smith succeeded Professor T. G. Moorhead as President of the British Medical Association. During the year under review the personnel of the Commission remained unchanged, except for the retirement of Sir Joseph Petavel, F.R.S., who was succeeded by Dr. G. W. C. Kaye. The following members were due to retire on August 1st: Sir Comyns Berkeley, Sir Arthur J. Hall, Professor Sidney Russ, Lieut.-Colonel A. B. Smallman, and Mr. J. M. Vallance. Owing to the special conditions of the charter and supplementary charter governing the first years of its life the Commission had the advantage of the services of these five members, of whom Professor Russ was Scientific Secretary from the beginning. Their places are taken by Professor James Young, Dr. Rupert Hallam, Professor J. C. G. Ledingham, Dr. Thomas Carnwath, and Dr. T. Ferguson.

At the close of 1934 the Commission issued a preliminary report on radium treatment in cancer of certain sites, the types of case dealt with being carcinoma of the breast, of the cervix uteri, and of the buccal cavity (lip, tongue, and floor of mouth).[1] The Cornish radium lent by the Trust to the National Physical Laboratory was used during the year for an investigation into the suitability of the röntgen as a unit of gamma-ray dosage. This inquiry is being continued, as special problems connected with the work still need attention. In particular, the doses received at various depths in tissue are being estimated by means of air-wall chambers having appropriate wall thicknesses. The Cornish radium is also being used to study two main factors involved in the protection of radium workers—namely, remoteness and lead shielding.

National Radium Centres

Once again summaries are given of the work in progress at the national radium centres in Aberdeen, Birmingham, Bristol, Cardiff, Edinburgh, Glasgow, Leeds, Liverpool, Manchester, Newcastle, and Sheffield. The scheme adopted at Aberdeen for the organization of treatment, teaching, and research in relation to radium "has already shown what valuable results can be obtained, not only in the care of patients, but also in the advancement of knowledge." The favourable expectations of the Commission with regard to developments in radiotherapy at Birmingham have been realized. At Bristol the difficulties referred to in previous reports have been explored in considerable detail, and "while it is disappointing to be unable to record that material progress towards reorganization has been made, there are indications which support the hope that improvement will in due course be achieved." At Cardiff full use is made of the radium allocated to the

[1] *British Medical Journal*, February 16th, 1935, p. 314.

centre, and the follow-up is unusually good. "It would, however, be idle to pretend that the centre is able to meet the needs of the whole of South Wales, not to mention those of Central and North Wales." The work at the Edinburgh centre maintains its high standard of efficiency, and is carried out at the Royal Infirmary and at a special annexe on the outskirts of the city. The mass unit (1-gram "bomb") is giving highly efficient service. At Glasgow there are two national radium centres, each in association with the University. The accommodation provided for the radium department at the Western Infirmary having proved inadequate, the hospital authorities have provided extra workrooms, properly equipped and staffed. "Excellent co-operation exists between the officers in charge of the radium and *x*-ray departments." The other centre (at the Royal Infirmary), though started at a considerably later period, "shows active signs of growth," and the hospital authorities are doing what they can, by a small purchase of radium, to meet the need for a further 250 mg. The Leeds centre "has from the first been organized on sound lines, and there is a record of freedom from loss of radium or damage to radium needles and containers which the Commission would like to see more general. Further, the clinical and follow-up records are singularly free from the type of error which is liable to vitiate conclusions drawn from clinical data." At the Liverpool Royal Infirmary radium therapy has been affected by changes in neighbouring organizations for the radium treatment of cancer patients, and the recent report of the Liverpool Hospitals Commission suggests that important changes may soon arise which may further affect the future development of this national centre. The work of the Manchester centre "continues at the same high level as has been noted in previous reports." This centre has already centralized a large proportion of the treatment given, and wishes to extend that system as opportunity arises. The Commission is still concerned as to the organization of the Newcastle centre, a matter referred to in its last annual report. A committee visited Newcastle, and as a result of the discussion which took place the Commission hopes, with some measure of confidence, that the work of radium therapy will be carried on in accordance with the provisions of the agreement between the centre and the Commission by the Royal Victoria Infirmary acting in close association with the University of Durham College of Medicine, through the medium of a joint committee. At Sheffield the facilities whereby the national radium at the centre is available for patients in the municipal and other hospitals of the city and surrounding districts have been considerably extended.

Taken as a whole the Commission is satisfied that the national centres provide evidence of a determined effort on the part of the authorities concerned to fall in with its ideal of a national scheme. The majority of the centres have reached a high level of efficiency in radium treatment; this in itself is a guarantee that the work will be carried out on thoroughly sound lines.

Regional Centres and Recognized Hospitals

The number of regional centres has not been increased since the last report; the work is being actively pursued on lines agreed upon with the Commission. The original intention was to allocate enough radium to these centres so that, with any which they might possess, they would have a minimum of half a gram for their use. This intention has been departed from here and there, when it appeared that full use could not be made of this quantity. The regional centres are at Lincoln, Norwich, Plymouth, Southampton, and Stoke-on-Trent. Another section of the report touches briefly upon the work carried out in hospitals at Bradford, Burnley, Leicester, and Wolverhampton, whose radium departments have been recognized by the Commission. Commendation is given to the service rendered at each of these institutions.

The constituent bodies of the centre known as the Post-Graduate School of Radio-Therapy are the Radium Institute, London, and the Mount Vernon Hospital at Northwood. Negotiations with a view to their fusion are still proceeding, and the Commission would welcome a successful issue. The work of the Radium Institute itself continues on the lines followed for several years past. The Radium Beam Therapy Research, which has now been carried on for eighteen months, has limited its investigations to carcinoma of the head and neck. The results obtained are thought to justify continuation of the research until enough time has passed to enable a mature judgement to be formed. A summary is given of a report from the Standing Clinical Committee working under the aegis of the King's Fund for London and the Commission jointly. This states that the work of the three one-gram units has proceeded without interruption on the same lines as before at the Cancer Hospital, the Middlesex Hospital, and University College Hospital. The further experience gained confirms the view that this form of treatment in appropriate cases is of very definite value, and that the experiment should be continued on its present lines, but with a modification of the units employed.

During the years 1930 to 1933 inclusive 17,825 cancer patients were treated by radium at national and regional centres and at co-operating hospitals. While fully realizing that much encouraging experience is being gained daily, the Commission again deprecates ill-considered statements as to wonderful results obtained in the radium and *x*-ray treatment of cancer. The possibility of recurrence of the disease after apparent cure compels the cautious to avoid the use of the word "cure" altogether.

Growing Demand for More Radium

As anticipated, there was an increasing demand during the year for more radium at the national centres, and the position to-day is that several of the most responsible and progressive centres require a larger supply for carrying out their work. The Commission calls the most serious attention to the present condition of radium supplies in the country. Greatly enhanced as they were in 1929, many of the most responsible centres in the country have less than they need, and this need is likely to be felt more strongly in the immediate future. Reference to the map will show that, owing to the geographical positions of the hospitals with which the Commission is, in one way or another, concerned, there still remain considerable areas for whose populations radium therapy according to modern methods cannot be held reasonably available, unless the poorer sections of it receive assistance (for transport to and from a centre, home help, etc.) either from funds voluntarily subscribed or from local authorities. On the other hand, it is not certain that the existing centres, limited as they are in respect of radium and of bed accommodation, could receive any large influx of suitable cases from these populations. It appears that most of the centres are able to do little more than treat those cases in which cure seems practicable and which occur among populations normally seeking treatment (for other disease) at those hospitals. From this it follows that, whatever other provision may have to be made, more radium will be necessary. Moreover, the Commission feels that it is now highly desirable to increase the number of large radium units to work under properly organized arrangements. Bearing these and many other factors in mind, it believes that a strong case can be made for the statement that further considerable radium supplies are required throughout the country—at least another 20 grams.

The sixth Congress of the International Society of Urology will be held in Vienna from September 9th to 12th, when the subjects for discussion will be: (1) treatment of carcinoma of the prostate, introduced by Dr. Hryntschak of Vienna, Mr. Cyril Nitch of London, and Dr. Oreja of San Sebastian; (2) suppuration of the renal parenchyma, introduced by Dr. Cabot of Rochester, U.S.A., Dr. Illyes of Budapest, and Dr. Necker of Vienna; (3) physiology and pathology of renal secretion, introduced by Dr. Pisani of Milan, Dr. Rubitius of Vienna, and Dr. Snapper of Amsterdam. Further information may be obtained from Dr. V. Blum, Alserstrasse 43, Vienna, VIII.

British Medical Journal

SATURDAY, MARCH 21st, 1936

A NUTRITIONAL SURVEY

In 1935 the Rowett Research Institute was asked by one of the main branches of the food industry for certain information as to food consumption. To give this a special inquiry had to be made into the food habits of the country, and through the co-operation of the Market Supply Committee and the staff of the Rowett Institute the problem in its various aspects was tackled. The report by Sir John Orr, just published,[1] deals with the nutrition of the people on a broad scale ; not minimum, but optimum requirements —that is to say, requirements based on the physiological ideal—are considered. The standard of adequacy of diet adopted is that of Stiebeling, which allows for a moderately active man 3,000 calories a day, with 67 grams of protein, 0.68 of calcium, 1.32 of phosphorus, 0.015 of iron, and 4,000 Sherman units of vitamin A, and 100 Sherman units of vitamin C: the average per head of the population is 2,810 calories, with 68 grams protein, 0.9 of calcium, 1.23 of phosphorus, 0.013–0.014 of iron, and 3,800 units of vitamin A and 95 of vitamin C, allowance being made for the extra requirements in protein and minerals during childhood and adolescence. Stiebeling's table was tested and found applicable to the population of the United Kingdom, except that research in Aberdeen suggested that the allowance of iron might with safety be reduced to 11.5 milligrams.

The total national supplies of the main foodstuffs were estimated from agricultural statistics, returns for imports and exports, etc. The population was classified into six groups according to family income, this classification being based upon income-tax or wage statistics, etc., combined with a sample investigation of the 1931 census. An estimate based on family budget data was made of the consumption of the various foodstuffs by each of the groups. The composition of the average diet of each income-group was examined, and the amount of the constituents present compared with the physiological standard. Finally the state of health of the country was reviewed to obtain some idea as to the extent to which inadequacy of diet is shown in poor physique and impaired health. It is admitted that the data drawn upon were in some respects inadequate and that some of the existing data might be of doubtful accuracy (family budgets examined totalled 2,640, but more than half were finally not included). The conclusions drawn are therefore an approximation to the actual state of affairs, and as further information accumulates some revision will be necessary.

[1] *Food, Health and Income. Report on a Survey of Adequacy of Diet in Relation to Income.* By John Boyd Orr. London: Macmillan and Co. Ltd. 1936. (Pp. 72. 2s. 6d. net.)

The average income per head per week of the whole population is estimated at about 30s., of which 9s. is spent on food. The six income-groups, with amount spent on food, are as follows:

Group	Income per Head per Week	Estimated Average Expenditure on Food	Estimated Percentage of Population
I	Up to 10/-	4/-	10
II	10/- to 15/-	6/-	20
III	15/- to 20/-	8/-	20
IV	20/- to 30/-	10/-	20
V	30/- to 45/-	12/-	20
VI	Over 45/-	14/-	10

The analysis of the consumption of foodstuffs in the six income-groups shows bread and potatoes to be practically uniform in amount at all income levels, though the lowest and the highest groups consume slightly less. The consumption of milk and eggs, fruit and vegetables, meat and fish, rises according to income. Milk (all kinds) varies from 1.8 pints in Group I up to 5.5 pints in Groups V and VI combined ; eggs, from 1.5 up to 4.5 eggs. Cheese and fats (excluding butter) reach their highest consumption in the middle groups, but fats, including butter, rise from 10.2 oz. in Group I to 15.8 oz. in Group VI. Fruit and vegetables (excluding potatoes) are shown as expenditure not quantity ; and on fruit the poorest spend 2½d. per head per week, the wealthiest 1s. 8d. When the constituents of the diets are examined group by group and compared with the Stiebeling standard the degree to which the adequacy is influenced by the income is clearly shown. The average diet of the poorest group (estimated to contain 4½ million people) is deficient in every constituent examined ; that of the second group is adequate only in total protein and total fat ; that of the third is below the standard in minerals and vitamins ; that of the fourth is probably below the standard in calcium ; that of the fifth has ample safety margin in everything except possibly calcium ; that of the sixth exceeds the standard in every respect.

From data as to the height of children and adolescents from classes representing the six income-groups it appears that boys at a school drawn from Groups III to VI were at 13 years of age 2.4 inches taller that those at a school drawn from Groups I to IV, and at 17 years of age 3.8 inches taller than adolescents taken from Groups I to IV (average heights). Literature of tests on children shows that improvement of the diet in the lower income-groups is accompanied by improvement in health and increased rate of growth (within the limits of heredity), which then approximates to that of children in the higher income-groups. Rickets, bad teeth, nutritional anaemia, are all fairly widespread in children of the lower income-groups, the only ones in which extensive observations have been made, while among adults tuberculosis and anaemia would seem to be more widespread. To raise the diet

of the three lowest income-groups (comprising one-half of the total population) to that of the fourth, which is adequate for full health, the following percentage increases in consumption would be necessary: meat, 12 per cent. in amount ; butter, 15 ; milk, 16 ; eggs, 18 ; fruit, 25 (in expenditure) ; and vegetables (excluding potatoes), 25 per cent.

This report, while admittedly based in some respects on scanty data, deals with the problem of national nutrition on such a large scale and yet in such detail that it will prove of great value to workers in very many fields, and deserves study by all. It is impossible in small compass to do more than indicate the scope of the work, in which Sir John Orr has undertaken a survey of the diet of the whole nation.

THE NEED FOR MORE RADIUM

In our account on another page of the sixth annual report of the Radium Commission reference is made to the growing demand for more radium. The reason for this demand is twofold. The more progressive the centre the larger the claims upon its resources ; and an ever-growing list of patients means that more radium is needed. Again, the present tendency is for radium to be used in larger quantities, in mass units as they are called, so that the Commission has now to face the embarrassing position that just as it is drawing upon the last available supplies it is being asked for larger and larger quantities of radium. Since national radium became first available for allocation by the Commission six years ago about 20 grams in all have been put at its disposal. To-day many of the most responsible radium centres in the country have less than they need, and this shortage is likely to be felt more acutely in the near future unless a larger supply is forthcoming.

The chief consideration that led to the decision to form centres, as opposed to some wider method of distribution, was that cancer patients needing radium therapy should obtain it as far as possible within hospitals adequately provided with essential facilities for diagnosis, treatment, and ascertainment of results. Leaving London aside, as being substantially provided for by the radium held by the King's Hospital Fund, the earliest and main recipients of loans of radium from the Commission have been the hospitals associated with English, Scottish, and Welsh medical schools ; they form the thirteen national radium centres. But these hospitals are so placed geographically that large areas remained without reasonable facilities, and the next step was the formation of five regional radium centres in voluntary hospitals situated and equipped in a manner that made them suitable for the purpose. Later still the Commission extended " recognition " to four hospitals which were already providing radium treatment out of their own resources under approved conditions. There are, in addition, fifty-six general hospitals in Great Britain, and two special cancer hospitals, dependent on their own supplies of radium, while some rate-aided hospitals also provide radium treatment. But owing to the geographical positions of the hospitals with which the Commission is in one way or another concerned, there still remain considerable areas for whose populations radium therapy by modern methods is not yet reasonably available. Another aspect of the question arises from recently acquired experience pointing to the value of large masses of radium at a distance from the patient. This therapeutic method, so far as can be judged at present, is proving beneficial in some forms of cancer, and the Commission feels that it is now highly desirable to increase the number of " large units " to work under properly organized arrangements, so that the prolonged period otherwise necessary for assessing their full value may be reduced.

Taking the many and various factors into its reckoning, the Commission concludes that further considerable radium supplies are needed throughout the country. It believes that at least another 20 grams could be used on the following lines: (*a*) in a form similar to that already handed over to it to enable existing centres to treat the populations of larger areas and/or the number of centres to be increased ; (*b*) in the form of one-gram or larger units. The provision suggested for (*a*) is largely bound up with the provision of more bed accommodation. Most radium centres keep all available beds occupied by radium patients, so that to increase their loan of radium would be of small value unless more beds were also provided for their use. The readiest method of increasing bed accommodation is by co-operation with rate-aided hospitals. We may therefore echo the Commission's gratification in seeing its work coming into closer relation with other health services of national scope. To put the whole matter in a phrase: the need of the moment is for much more radium and for many more beds for radium patients.

THE EXPECTATION OF SURVIVAL IN PULMONARY TUBERCULOSIS

Almost a century has passed since Bodington published the classical essay in which he condemned the " antiphlogistic " treatment of phthisis and brought forward conceptions that form the basis of treatment in sanatoria even to-day. As is often the case with prophets in their own country, Bodington's work was not recognized in England until more than fifty years later, although his method had by that time already been practised in Germany, America, and Switzerland. This delayed recognition was accompanied by an over-sanguine enthusiasm which was soon found to be unjustified. The danger of a reaction which might lead to complete condemnation of sanatoria was averted by wiser spirits, who attempted to estimate the real value of sanatorium treatment. As early as 1908 the Local Government Board published a report by Bulstrode, one of their medical inspectors ; and since then other reports, under the aegis of the Medical Research Council, have appeared from Frimley and Midhurst, and, in regard to " insured persons," from Bradford. The difficulties in assessing the value of sanatoria by means of these inquiries are obvious when the latter involve the pooling of results from several

institutions ; they are of a different kind when the investigation concerns only one sanatorium: since only large numbers should be analysed the inquiry must extend over a period which may cover changes in treatment or administration. Nevertheless the recent careful statistical analysis[1] by Sir Percival Hartley, Dr. Wingfield, and Mr. Burrows of 8,766 patients treated at the Brompton Hospital Sanatorium, Frimley, from 1905 to 1931, compels attention. The follow-up department of the Brompton Hospital is deserving of gratitude for rendering this task possible, as only 8 per cent. of the patients were not traced. The analysis has been based solely upon the medical condition on admission to the sanatorium, the current Ministry of Health classification being used. The results of the investigation are presented in the form of comparisons between the probability of surviving five years and the corresponding probability derived from the English Life Table No. 9, and were calculated for each sex in quinary age groups at the date of admission and at the expiration of each succeeding year. From these results the authors have been able to form conclusions of definite value. They show that the mortality experienced by patients suffering from pulmonary tuberculosis depends almost entirely on the classified stage of the disease at entry, and is relatively unaffected by sex or age. The danger to the patient is greatest in the first two years after leaving the institution ; after that the probability of survival improves year by year. Similar analysis of the results of artificial pneumothorax indicates that the probability of survival is materially increased in the cases so treated ; even Grade B3 cases showed a higher survival than a controlled group derived from all grades, and the superiority persisted throughout the period investigated. These results held good, however, only when there was no obvious disease in the contralateral lung. The investigation into the distribution of deaths over the calendar year showed that " for both males and females the curve relating to Frimley patients exhibited characteristics which placed them in an intermediate position between the curves relating to deaths from pulmonary tuberculosis amongst the general population and those relating to deaths amongst the general population from causes other than tuberculosis." This the authors believe to be the first occasion on which statistical evidence has been produced to show the value of sanatorium treatment. Finally, they conclude that the prognosis of a patient with pulmonary tuberculosis has not materially altered within the last thirty years, unless he belongs to the category which permits of artificial pneumothorax treatment. Stress is therefore laid on the importance of diagnosing the disease in the symptomless stage. The paper should be read *in extenso* by all those interested in either the preventive or the curative aspects of pulmonary tuberculosis. As, however, the patients at Frimley represent a selected group—almost all spend a preliminary period at the Brompton Hospital, and both there and at Frimley have the benefit of the most modern methods of investigation and treatment—caution should be observed in applying the conclusions to the heterogeneous collection of institutions constituting the sanatoria in this country.

[1] The Expectation of Survival in Pulmonary Tuberculosis: An Analysis of 8,766 Cases Treated at the Brompton Hospital Sanatorium, Frimley. By Sir Percival Horton-Smith Hartley, R. C. Wingfield, and V. A. Burrows. *Brompton Hospital Reports*, 1935, iv.

RHEUMATIC PLEURISY

Clinically pleurisy as a manifestation of acute rheumatic infection in childhood is uncommon. Drs. S. Starr and P. Parrish,[1] however, now produce evidence from *x*-ray studies that this complication of rheumatism is present more often than has been thought. Their attention was first drawn to this syndrome by two cases. In one, rheumatic interlobar serofibrinous pleurisy, extending to become diaphragmatic and simulating acute appendicitis, was the first evidence of rheumatic fever. It was followed in four days by polyarthritis, and later by pericarditis and endocarditis. In the other case diaphragmatic pleurisy, with *x*-ray evidence of interlobar pleurisy, on the left side occurred in a girl with mitral disease and an enlarged heart: there was no previous history of rheumatic fever. The authors then examined *x*-ray photographs of the chests of normal and rheumatic children, looking especially for pleural thickening in the fissures of the lungs. Abnormal pleural thickening was found in 8.9 per cent. of the control series. Similar changes were observed in 13.5 per cent. of thirty-six patients with chorea. Of eighty-five cases of rheumatism, which included all the cases of rheumatic fever exclusive of those associated with chorea, fibrinous or serofibrinous pleurisy was demonstrable at the bedside in six (7 per cent.). *X*-ray examination revealed abnormal thickening of the interlobar pleura, presumably due to rheumatic pleurisy, in 43.6 per cent. In many of these patients two or three interlobar pleural surfaces were involved at one time. The proportion of children with a positive tuberculin reaction was approximately the same in the control and in the rheumatic groups (9 and 12 per cent. respectively), so there did not appear to be any relation between this high incidence of pleurisy in the children with rheumatism and that in children with primary tuberculous infection of childhood. Similarly, there was no connexion between this high incidence of pleurisy and previous illnesses, such as measles, scarlet fever, or pneumonia. These *x*-ray studies are of great interest, since previously most of the evidence on the association between pleurisy and acute rheumatism has been based on necropsy findings. It has long been known that pleurisy often occurs during acute pericarditis, and by *x*-ray examination it was confirmed that children with pericarditis show an extremely high incidence of pleurisy.

[1] *Amer. Journ. Dis. Child.*, 1935, l, 1187.

ANTOINE LAVOISIER

A recent study of the life and work of Lavoisier[2] describes his experimental work in great detail, showing the chronological sequence of events and how they developed. The developments were affected by contemporary discoveries and often-times impeded by existing errors of belief. It is difficult now, when the nature and properties of oxygen, of hydrogen, and of carbon dioxide are described in simple language, to realize the perplexities that confronted Lavoisier and his contemporaries. The minds of philosophers at that time were prepared to contemplate possibilities which in the present day can only appear fantastic. Thus Boyle was prepared to ascribe the gain in weight

[2] *Antoine Lavoisier. The Father of Modern Chemistry.* By Douglas McKie, Ph.D., B.Sc. London: Victor Gollancz Ltd. (10s. 6d.)

which resulted when a metal became transformed into a calx by ignition as due to the addition of fine particles possessing weight which passed with the heat through the walls of the containing vessel. The author of this history, Dr. Douglas McKie, describes how the mystification took first one turn and then another through a long period, and how the perplexity was finally resolved. This would not have been easy to follow from a reading of the abundant extracts from the memoirs of Lavoisier and others which are here given were it not for the careful treatment of the author, who discusses the statements contained in them with a judicial grasp and a clear presentation of their relation to each other. He also throws the personal character of Lavoisier into strong relief. Lavoisier was spirited in the defence of what he held to be right and was both far-sighted and humane. He quickly recognized the need of a new nomenclature in chemistry to free it from the confusion resulting from the use of terms which had ill-defined meanings and which connoted ideas that changed from time to time. The oil, the mercury, and even the water of the philosophers were not the oil, the mercury, or the water in the sense that we attach to them. And, after the initiation of a movement led by de Morveau, Lavoisier took a prominent part in the foundation of the system of nomenclature that with slight modification still remains the basis of the language of chemistry. He was also much concerned in civil life about the inequalities in taxation of the population, and he prepared a scheme of voluntary contributory insurance among the poorer classes against ill-health and old age. In 1793 he set out a detailed scheme for State education in the arts and sciences, making free primary education a duty that society owes to the child. His wife, too, was a spirited woman, and undertook the publication of her husband's uncompleted memoirs after his death.

CHEMOTHERAPY FOR STREPTOCOCCAL INFECTIONS

The results of chemotherapy in bacterial as distinct from protozoal infections have always been inconclusive and disappointing. The variety of counsel which prevails in face of generalized septic infection and the long list of reagents which have been hailed in turn as capable of influencing the course of such an infection by some action on bacteria in the blood stream or tissues are witnesses to the non-existence of any dependable remedy of this kind. It was therefore with unusual interest and hope that an audience listened in London last October to Professor Hörlein of Elberfeld,[1] whose associates have synthesized a long series of azo-compounds, one of which has been found capable of destroying streptococci in the body. This drug, which goes under the name of "prontosil," can be given by any of several routes, including the oral, and in the hands of German workers not only consistently protects mice which have been given a lethal dose of *Streptococcus pyogenes*, but has been used clinically in an extensive series of cases with results that are said to be favourable. Attempts in England to confirm these findings in animals have yielded less conclusive though still significant results, a difference probably dependent on the strains of streptococcus used and their antecedent history. Reports of clinical trials in this country are still wanting, although several have appeared on the Continent. Prontosil has no direct bactericidal action, and Professor Hörlein had no explanation to offer of the mechanism of its effect in the body. Such an explanation is now put forward by Levaditi and Vaisman,[2] who have made an extensive study of the action of this drug and have obtained results in inoculated mice which are intermediate between the German and English findings already mentioned. Their belief is that prontosil renders streptococci susceptible to phagocytosis, and that it does this by destroying their capsules. The evidence for this proposition is not wholly convincing, and nothing in the paper suggests that its authors subscribe to the usual belief that most varieties of *Streptococcus pyogenes* are non-capsulated. But the idea of a change occurring *in vivo* for which there is no counterpart—at least in any loss of reproductive activity—*in vitro* fits the facts as they have been stated so far. There is of course no pretence of even conjecturing the nature of whatever chemical reactions may be concerned, but among a number of ways of pursuing this subject which suggest themselves one is a study of the capacity of this drug to interact with and possibly alter the properties of streptococcal toxins.

[1] *British Medical Journal*, October 12th, 1935, p. 698.

HOSPITAL LIGHTING

At a recent conference between architects and electric lighting experts[3] a paper was read by Mr. P. J. B. Harland, an architect, on his experiences in the designing of the lighting of isolation hospital wards and theatres. In hospitals for infectious diseases the rules of the Ministry of Health are that no beds may be nearer together than twelve feet centres, having 144 square feet to each bed, with good observation from the duty room, and cross-ventilation of the wards. He said that the latest method of ward planning was not to set the beds at right angles to the walls between each window, but parallel to and away from the walls, the beds in most cases being backed by screens of metal and glass. The change in placing of the beds had simplified the lighting problem. At the Tolworth isolation hospital wards accommodating ten beds are lit entirely by three ceiling pendants. There are, in addition, plugs for doctor's lamp, wireless, and power beside each bed. The three pendent lights are set 9 feet 9 inches from the floor, and have 150-watt lamps, which give 3 foot-candles on a table immediately below and 1.2 foot-candles to each bed. Nurses and patients report that the illumination is both restful and cheerful. Mr. Harland adds that the credit for this is due to the vast strides in the design of modern lighting fittings, since with the use of diffused bulbs and spherical globes uncomfortable glare is eliminated. He comments on some of the difficulties of theatre lighting. The finishing material on walls and floor is generally coloured a light green. In some hospitals even the towels are so tinted. A large north light gives a maximum of daylight. In his opinion the tone of the theatre walls should be a darker grey than is usual in this country ; something with a more restful appearance and giving a better appreciation of the light on the table. The two most general lamp fittings are: (1) six or more lamps with parabolic reflectors placed

[2] *Presse Méd.*, 1935, xliii, 2097.

[3] Conference of architects arranged by the Electric Lamp Manufacturers' Association of Great Britain, February 4th, 1936.

at a height of 12 feet from the floor; (2) the shadowless lamp. In a New York hospital (as some of those who made the B.M.A. world-tour saw) the first arrangement is carried out in excellent style in an eye theatre. Sixteen prismatic units are sunk in a circle in the ceiling; within the circle of lights the ceiling is closed by glass. Above the glass is a gallery through which sixteen spectators can view the operation with binoculars. The arrangement was admirable. The general illumination of the theatre is a problem in itself. Mr. Harland wonders whether it will be possible to design one big shadowless lamp which will light every square inch of the room equally.

SPECIAL BADGES FOR DOCTORS' MOTOR CARS?

Our attention has been drawn to a circular issued by the National Motorists Association to members of the medical profession informing them that in pursuance of its policy of active campaigning in the interests of all motorists, it is "issuing to 40,000 doctors a special transfer badge whose design includes a Red Cross." The National Motorists Association states that whilst official recognition of any distinguishing mark is a matter for the consideration of the authorities, it feels that what is denied officially may be accorded on the score of expediency, and its suggestion is that the badge should constitute an emblem of priority when exhibited on a medical practitioner's car. The British Medical Association is advised that the use of the emblem of the Red Cross on a white ground would be illegal. It should also be noted that the question of issuing a special badge for registered medical practitioners was discussed by the Representative Body of the Association in 1935. The Representative Body then expressed itself against the institution of any such practice. In view of the above considerations we strongly advise members of the profession to consider the position carefully before they exhibit such a badge on their motor cars.

ANNALS OF MEDICAL HISTORY

The January instalment of the *Annals of Medical History*[1] comes out in altered circumstances. A year ago an editorial appeal was made "to our few subscribers and many readers"; this brought in not only sympathetic commendation but some new subscribers, and so helped at a critical period. Now, however, the firm of Paul B. Hoeber Inc., which has published the *Annals* since its start in 1917, has become the Medical Book Department of Harper and Brothers, founded in 1817, a century before the *Annals* first saw the light. Further plans are being made for special departments in the *Annals*; the "Library" will deal with bibliographical topics, notes on books and manuscripts, another will be concerned with current literature on medical history, and a third will report on meetings of societies interested in the subject. Dr. Packard, editor since the start, fortunately continues in the chair, but the number of associate editors, which had fallen to fourteen, has been raised to twenty-one, Professor H. E. Sigerist of Baltimore, Professor John Fulton of Yale, and Dr. Archibald Malloch, librarian of the New York Academy of Medicine, being among those who have thus strengthened the editorial board. Among the seven articles in the present number Galen's writings and the influences inspiring them are further described by Dr. Joseph Walsh. Dr. A. Levinson sketches the discoveries—the cerebro-spinal fluid, the anatomy of the internal ear, the nasopalatine nerve, and albuminuria in acute nephritis—of Domenico Cotugno, who also gave a description of sciatica. Most appropriately this article is followed by the admirable account of an eighteenth century contemporary—the encyclopaedic Albrecht von Haller, who is sometimes credited with the discovery of the cerebro-spinal fluid; Professor Oskar Klotz of Toronto shows how versatile Haller was and how he surpassed his teacher, Boerhaave, by adding the experimental method to the study of physiology, pharmacology, medicine, and surgery. The early history of industrial medicine, from the time of Hippocrates to Ramazzini's publication in 1700, is traced in a scholarly manner by Dr. L. J. Goldwater. The department of morbid anatomy ("The Pathological Cabinet") of the New York Hospital seventy-five years ago is described by Dr. C. T. Olcott, and Dr. Norman Macneill of Philadelphia compares infant welfare as taught there a century ago with the present position, and refers to a pioneer work on paediatrics by W. P. Dewees in 1825, which has seldom received its due meed of attention.

[1] *Annals of Medical History*. New Series, vol viii. No. I, January, 1936. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber Inc., Medical Book Department of Harper and Brothers; London: Baillière, Tindall and Cox. (Pp. 1-92, illustrated. Volume of six numbers, £2 10s.; single numbers, 10s. 6d.)

HOUSING POLICY ABROAD

One of the latest publications of the League of Nations is entitled *The Housing Policy in the Netherlands*, by Dr. H. van der Kaa, Inspector-General of Public Health at The Hague (obtainable from Allen and Unwin, 40, Museum Street, London, W.C.1, 2s. 6d.). Early in 1935 the League's Health Organization undertook to collect documentary material relating to housing problems, to which recourse might be had by administrations requiring information on such matters. Each volume in this series on urban housing has reference to a particular country, and illustrated volumes relating to France and Italy are now available in French only (Allen and Unwin, 5s. and 3s.); a fourth, dealing with the urban housing problem in Poland, will shortly appear. These publications contain a study of national housing policy—legislation, State intervention, public bodies, municipal and county councils, and private initiative. The methods of determining housing requirements are described, and numerous general, technical, and financial statistics are given. The volumes also contain examples of town planning and architectural design, building methods, and technical and health standards now applied.

Sir Robert Muir, F.R.S., will deliver the Lister Memorial Lecture at the Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., on Tuesday, April 7th, at 5 p.m.

We regret to learn of the death of Sir Kedarnath Das, C.I.E., M.D., principal and professor of midwifery and gynaecology, Carmichael Medical College, and formerly dean of the faculty of medicine, Calcutta University. We regret to announce also the death, in his 80th year, of Dr. T. B. Grimsdale, consulting gynaecological surgeon to the Liverpool Royal Infirmary.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some diseases of the digestive system met with in general practice.

TREATMENT OF FUNCTIONAL DYSPEPSIA

BY

C. M. WILSON, M.D., F.R.C.P.

The treatment of functional dyspepsia has little to do with the prescription of particular drugs and special diets ; stripped to its essentials it consists in the careful exclusion of organic disease and in the ability to convince the patient that this has been done. It includes, too, the search for a cause of the dyspepsia, in order to remove it, or, if that is vain, such reformation of his or her way of life as may be possible. It is customary, and far from irrelevant, to preface an article on the treatment of functional dyspepsia by underlining the difficulties in diagnosis, since the most effective psychotherapy is a good history and a thorough examination.

Elimination of Organic Disease

In the elimination of organic disease—a matter beset with many difficulties—an accurate history is almost everything. A physician of quality in his search for truth will contrive to ask one and the same question in three different ways. He is obedient to the laws of evidence: he asks questions, he does not suggest answers, and he begins at the beginning. A patient under suspicion of malignancy complains of epigastric pain since October, but with a little gentle jogging of his memory he will presently own that he had similar pain in October a year ago. A single question has cut out a gnawing anxiety. In this field to listen patiently is the beginning of wisdom. We want to hear not so much what patients eat and drink, but what they do in the day. Is the complaint of pain really pain, or only discomfort? If it is pain an organic origin is probable ; if the pain is also felt in the back, if it wakes the patient and makes him afraid to eat, or if it is so severe that to escape from it he makes himself vomit, then an organic diagnosis may be provisionally made. There is a precision about pain in organic disease which is wanting in functional dyspepsia. Ulcer pain, for example, appears after food by the clock ; it is present for a certain time, measured in days or weeks, and then vanishes completely for months. The seat of the pain is indicated economically by one finger, and not by a gesture which embraces a considerable portion of the abdomen.

There are certain organic diseases always in our mind when we are about to make a functional diagnosis ; they must not be lightly dismissed. In particular, we are aware of the quiet approach of cancer of the stomach and the difficulty of an early diagnosis. When a man of middle age, or more than middle age, first complains of dyspepsia, accompanied by loss of weight, of strength, and of appetite, and when his symptoms do not quickly respond to treatment, then carcinoma of the stomach is probable and laparotomy justifiable. The precision of ulcer pain has already been contrasted with the lack of definition of functional discontents ; it yields to alkalis and leaves the patient in peace for months at a time ; such intervals of complete freedom are seldom the lot of the victim of functional disorders. Local tenderness and some muscular rigidity may help, but if after a careful analysis of the character of the pain we have not made a provisional diagnosis probably none will be made until the radiologist repairs the omission, a sequence of events which soon becomes a habit.

Reflex Dyspepsia

Much has been written of appendicular dyspepsia, but for my part I do not care to make such a diagnosis without good evidence that the appendix has been acutely inflamed. It is, however, the common dyspepsia associated with disease of the gall-bladder which so closely resembles a functional disorder that the very elect may be taken in error, and it is an everyday experience to see gall-stones removed from the abdomen of a woman who for ten years had worn a functional label. Flatulence and distension after meals, punctuated by attacks of nausea, in an obese middle-aged woman whose eyes are sometimes tinged yellow and whose urine at such times contains a trace of bile, can often be attributed to the gall-bladder. If the inflamed organ is brought down by a deep breath to fingers pressed up under the costal margin a sharp stab of pain may confirm the diagnosis.

Valuable as the history is in making a provisional diagnosis it is wise to support it when we can by other investigations. I find I have recourse to the test meal as a diagnostic measure less frequently than I did some years ago. An excess of mucus may unmask a chronic gastritis which would otherwise have escaped detection. Foul-smelling stagnant fluid, siphoned from the fasting stomach, would be valuable evidence of carcinoma of that organ. The test meal is serviceable in other conditions, but I do not think in the judgement of those with most experience of dyspeptic disorders it has vindicated its claim as an essential part of routine diagnostic technique. The position of radiology, on the other hand, is not open to question, though the amateur in this field is nothing less than a dangerous nuisance.

Approach to the Patient

If it is important to exclude so far as we can the possibility of organic disease, it is as important to convince the patient that this has been done. To fail in this is to fail in everything. Yet failure is common, and the reasons are not far to seek. There are physicians who are handicapped by temperament in their approach to functional disorders. Why should they bother to search for a cause in the patient's mode of life when it is the way these weaklings are made, and not the stresses to which they have been subject, that is responsible for their dyspepsia ; when, indeed, the demonstration of a neuropathic constitution is in their eyes essential to the diagnosis. It is an attitude as old as the Pharisees, and familiar enough to those who were concerned with shell shock in the war. Under the strain of active service an unstable man soon gave way, but if the test was sufficiently severe and sufficiently prolonged anyone, however sound his stock, might develop functional disorders.

In like manner the mind may be hurt in peace as in war, and functional dyspepsia may develop in anyone if

the wear and tear of life fastens on them and will not let go. It is our first concern to make that plain to the patient. He has been told that if his malady is not organic it is less than nothing, that he is a bundle of nerves, and that his troubles are imaginary. We have to convince him that we are not for one moment in doubt as to the reality of his sufferings, and are interested in them and in him. Then, when our sympathy and understanding are no longer in question, he will be prepared for a simple explanation of how an emotion such as fear can, through an endocrine disturbance, affect two factors of digestion—the movements of the stomach and the vascularity of the mucous membrane. In this way it is made clear to him that the cause of his dyspepsia is some mental process, which must be removed before he can get well. He begins to understand his own problem of health, and to see that it can never be solved by drugs or by dieting. He is ready now for some radical readjustment in his way of living. He will prosper according to our success in removing the cause of his dyspepsia, or if that is beyond our reach he may have to confess that he has not learnt to face adversity with equanimity, that he has failed to build up a working philosophy which would help him to make the best of things, as cheerfully as may be.

I have dwelt on our reward if the cause of the dyspepsia is detected and removed, but we shall be spared disappointment if we can recognize a group of dyspeptics for whom dieting, symptomatic treatment, and psychotherapy are equally futile. No disorder of gastric function can be demonstrated in these patients. They are suffering not from a phobia but from a delusion, and they can be known from their reaction to attempts to explain to them that their symptoms have a nervous origin. Such an explanation is not tolerated. They are convinced there is an organic basis, adhesions, or what not. They hanker after an operation. Reasoning with these people is seldom profitable. It would not be right to leave the question of causation without emphasizing the importance of extirpating from the patient's mind the fear of cancer. Hidden away, it must be routed out and dealt with firmly.

Food and Medicine

In the literature devoted to the nervous dyspeptic it has not been customary to set aside as little space for food and medicine as I have done. It is, of course, a matter of emphasis, a question of degree. Those most sceptical of drugs and diets are not independent of them. It may be profitable, therefore, to review their proper usage, and in so doing it is convenient to follow the common practice of distinguishing two groups of functional dyspepsia—the hypersthenic and asthenic. Hurst believes that a man's liability to indigestion depends upon his constitution, that it is a congenital weakness. The majority of people, which he puts at 80 per cent., escape this defect, and will probably grow old without ever suffering from chronic indigestion. Of the remaining 20 per cent. half, he believes, are born with the hypersthenic diathesis and half with the asthenic diathesis. (These percentages, I imagine, are meant for precision of speech, and are not intended to bear the scrutiny of pedantic statisticians.) If these 20 per cent. are obedient in their lives to the laws of health, if they are moderate in the use of alcohol and tobacco, if they eat slowly at regular intervals when not overtired, and remain free from sepsis, then, Hurst believes, they will not develop dyspepsia, and chronic indigestion will become a rare disease. But if they neglect these precautions they will suffer from chronic gastro-duodenitis.

In the war this doctrine was tested on a vast scale: all these laws were set at naught and the dentist was forgotten, but it was, I think, the common experience that those who in city life had suffered from functional dyspepsia shed their symptoms in the open air and enjoyed a kind of gastric renaissance. Hurst is reluctant to make a diagnosis of nervous dyspepsia; he appears to be feeling his way towards a total renunciation of the view that disorders of the stomach, apart from hysterical vomiting and the like, exist without structural change. I believe that chronic gastritis is often present in patients who have been labelled functional dyspeptics, but a faith of that kind cannot for one moment blind one to the dominant part played by the mind in the disorders with which this article is concerned. I cannot credit that a gastric millennium will appear on the earth when men drink less, smoke less, and go more often to the dentist. It is more likely to come if and when England ceases to be an industrial state with a large population huddled in cities, and returns to the pastoral conditions for which most of us were designed.

Hutchison recognizes the same two groups, and believes that everyone has a tendency in one or the other direction. But he pictures the symptoms of these groups brought about by nervous instability acting in the hypersthenic group through the vagus, and in the asthenic group through the sympathetic. It may be serviceable to consider the two groups in detail.

The Hypersthenic Group

The hypersthenic individual is, commonly, a man whose long days in the city or in the practice of a competitive profession have left him, as the price of success, in a state of nervous irritability. The movements of his short stomach, which is tucked up under the ribs, are exaggerated, so that it is soon empty. The secretory output is likewise increased, but with less certain consequences. He complains of acidity when his stomach is full and of discomfort when it is empty.

The diet is planned to meet this secretory surfeit. But it is significant that, while some physicians give protein freely to fix the free acid and limit sugars and starches, others hold that protein foods only stimulate the gastric juice, and give carbohydrates with a full hand. Both are generous with fats and parsimonious of all substances that stimulate secretion—condiments, extractives in soups and gravies, alcohol, and the like.

The excessive secretion can be discouraged by moderation in smoking and by 5 minims of the tincture of belladonna given in an ounce of water before each meal, and be neutralized by an antacid powder, to which 6 grains of bromide are added, taken in water or milk one hour after food:

℞ Sod. brom. ... ... gr. vi
Sod. bicarb. }
Mag. carb. } ... ... āā gr. xv
Bis. oxycarb. }

The Asthenic Group

In this group the patient is often a woman of poor physique, passing perhaps through the climacteric, who has never put up much of a fight against circumstance. She complains of sinking sensations when the stomach is empty, of flatulence and fullness. She may wear an abdominal belt, but, whatever is done for her, exhaustion and depression seem to be her lot. The movements of her long, low stomach are so impaired that it empties slowly. Digestion is slow and the secretions diminished.

The diet is drawn up to suit a stomach the movements of which are impaired. Certainly small, frequent, and dry meals (fluids being drunk between meals), without bulky foods such as cabbage, potatoes, and most vegetables, leave the patient more comfortable. All those foods which were banned in the first group because they

stimulated secretion are here rational. A prescription such as the following, taken before meals, stimulates gastric secretion, and is helpful.

℞ Sod. bicarb. ... ... gr. x
Tinct. nuc. vom. ... ... ♏ v
Inf. gent. co. ... ... ʒ ii
Aq. chlorof. ... ... ad ʒ i

It is a common practice to prescribe hydrochloric acid for members of this group.

℞ Acid. hydrochlor. dil. ... ... ʒ ss
Syrup. aurant. ... ... ʒ ij
Aq. ... ... ad ʒ ss

A tablespoonful in five ounces of water sipped at meal times.

Prescribed in this manner it makes a rather uninteresting beverage of the same complexion as weak lemonade. It is often given so that the unpleasant acid taste is not disguised, when it is likely to defeat the very end for which it was prescribed. If the bowels are obstinate, cascara, aloes, rhubarb, and senna are available. Rest in bed or a holiday, according to the severity of the case, is beneficial.

Re-education

It is all a little too tidy to be convincing. There is no proof that an increase in the acidity of the gastric juice can cause symptoms. Heartburn is not due to regurgitation of acid gastric juice into the oesophagus ; it occurs with achlorhydria. Where there is impairment of function it would seem reasonable to counsel dietetic restrictions. If the stools are full of coarse undigested material which is found to be cellulose the symptoms may vanish when foods containing cellulose are left out of the diet, and the stools become normal. But with experience we look less and less to drugs and diets for salvation in this form of digestive disorder. They have been fully sampled before we are summoned. We have to wean these people from their preoccupation with the digestibility of various foods, not to encourage them in their researches. Their eyes follow what they eat in its passage through the alimentary tract ; they must be turned to more useful occupations. We have to resist the importunate in their demand for medicine and a diet, to convince them that there is no easy path to health along these lines. It has been well said that the patient who is the subject of this article, like the diabetic, is curable only in so far as he can be educated and taught to care for himself.

In the hypersthenic group much may be done by a tenacious attempt to induce the man in question to conduct his life on more rational lines. Here is a man with a liking for ball games and some proficiency in them, living in Hampstead a few minutes from a golf links, who drags himself out of bed on a fine summer day at 8.45 a.m., when he might have risen with his servants two hours before and come to his breakfast with an appetite born of exercise before the good of the day has gone and he himself is used up. If he can be led to talk of his golf instead of his insides we shall not need our " do's " and " don't's " in dieting, our alkalis and belladonna, though we shall not necessarily earn the gratitude of his family by the change. We too readily accept the protestations of members of this group that they cannot possibly alter their lives. These men are often intelligent ; they will listen to close reasoning—it is their own coinage—and they will respect the force of character which prevents their physician hurrying along the line of least resistance. It may be necessary to put it to them that they must choose between living with their symptoms and the reformation of their ways, remembering that few really efficient people are too busy to do what they wish to do.

Our task in dealing with the women in the asthenic group is of another and less hopeful kind. Here the affront to the laws of health is less patent, the inborn error in her architecture more obvious. This woman is only busy with her discontents ; if she had more to do we might hear less of them. At the best her recovery of health is going to be a long-drawn-out affair. But she, too, has a cause for her exhaustion ; if it can be found and removed we shall be well rewarded.

I shall end as I began by affirming our independence of drugs and diets. In diagnosis we shall get what we want from the patient's discourse, and in treatment we depend on that sympathetic insight into another mind which is the beginning and the end of all achievement in this field.

A NEW NATIONAL LIFE TABLE

IMPROVED EXPECTATIONS OF LIFE

The Registrar-General's decennial supplement—England and Wales, 1931, Part I, Life Tables—has just been issued. It consists of a report by the Government Actuary, Sir Alfred W. Watson, on the mortality experience of England and Wales in the three years 1930, 1931, and 1932. The experience of males and females has been examined separately.

The principal table is a new national life table for England and Wales, which continues the series of life tables constructed after each successive census, and is henceforth to be known as English Life Table No. 10. An indication of the trend of mortality in recent years is afforded by the comparison of the expectations of life according to English Life Tables, No. 8, No. 9, and No. 10, which may be taken as representative of the conditions existing in 1911, 1921, and 1931 respectively.

Expectation of Life (Years) : English Life Tables

Age	Males			Females		
	No. 8 1910-12	No. 9 1920-2	No. 10 1930-2	No. 8 1910-12	No. 9 1920-2	No. 10 1930-2
0	51.50	55.62	58.74	55.35	59.58	62.88
10	53.08	54.64	55.79	55.91	57.53	58.87
20	44.21	45.78	46.81	47.10	48.73	49.88
30	35.81	37.40	38.21	38.54	40.26	41.22
40	27.74	29.19	29.62	30.30	31.85	32.55
50	20.29	21.36	21.60	22.51	23.69	24.19
60	13.78	14.36	14.43	15.48	16.22	16.50
70	8.53	8.75	8.62	9.58	9.95	10.02
80	4.90	4.93	4.74	5.49	5.56	5.46
90	2.87	2.82	2.63	3.16	3.13	2.98

Analysis of Mortality Rates

An examination of the rates of mortality at individual ages shows even more emphatically the great improvement in the vitality of the people which has taken place at all but the most advanced ages. The improvement is specially marked at the youngest ages. The probability that an infant will die within a year of birth has decreased between 1931 and 1911 by as much as 40 per cent. Out of every 1,000 boys born the number who died before attaining the age of 1 year was in 1911 about 120, in 1921 about 90, but in 1931 about 72 only. Out of 1,000 girls born the numbers of deaths in the first year of age were 98 in 1911, 69 in 1921, and 54 in 1931. During childhood and adolescence also the improvement in mortality experience though not so pronounced has still been substantial, while from ages 20 to 60 the 1931 mortality rates are much less than those for 1911, the difference being greatest round about age 40, where it is well over 30 per cent.

In contrast with this remarkable improvement in the mortality experience during the greater span of life it is found that at the advanced ages the 1931 rates of mortality are rather heavier than those for 1921 or 1911. The deterioration as compared with the 1921 rates first becomes apparent at age 69 in the case of males and at age 78 in the case of females. One cause of this phenomenon is probably the survival to old age in the present generation of many of the

weaker members of the community who under the conditions prevailing in the past would have succumbed before old age was in sight.

Rates of mortality are given for females according to marital condition—single, married, and widowed. The mortality of widows is found to be heavier than that of either single or married women. At all ages from 25 to 60 the rates of mortality for married women are lighter than those for spinsters, but at the higher ages there is little difference between the two classes.

Between 1921 and 1931 there was a substantial improvement in the mortality experience of all three classes of women, but the most remarkable feature disclosed by this section of the investigation is the increase at the younger adult ages in the vitality of married women, as compared with single women. In recent years there has been a marked reduction in the number of births. It follows that though the maternal mortality rate, which is the ratio of the deaths assigned to childbirth to the number of births, has slightly increased, the actual number of deaths associated with childbirth has decreased. Apart, therefore, from variations in the numbers of deaths due to other causes, the reduction in the birth rate has diminished the rate of mortality among married women at the child-bearing ages.

Geography and Density of Population

The report also contains an account of an investigation of the mortality experience of sections of the country with reference to (*a*) geographical situation and (*b*) density of population. Generally it may be stated that the mortality among both sexes is heaviest in the north of the country and tends to become lighter as the locality approaches the south. The effect of density of population on death rates is measured by the relative mortality experience of county boroughs, urban districts, and rural districts in the several geographical areas. Whilst in the county boroughs, where the mortality is usually heaviest, the degree of excess over the national rate of mortality is in most cases similar for both sexes, in the rural districts, which usually experience the lightest mortality, males are subject to a much more favourable mortality in relation to the general average of their sex than are females.

In order to illustrate the magnitude of the differences between the sections typical of the heaviest and lightest mortality, a detailed investigation has been made of the experience of (*a*) the county boroughs of Northumberland and Durham and (*b*) the rural districts of the East Region. The results of this comparison are very striking. For example, out of every 1,000 boys born the number who fail to survive for one year is 96 in the county boroughs of Northumberland and Durham, but only 57 in the East Region rural districts. The corresponding numbers in relation to 1,000 female births are 73 and 45 respectively.

Another table shows, out of every 1,000 persons of various ages, the numbers who die within ten years in England and Wales, and in the two selected sections. Taking the age of 50, for example, the number out of 1,000 males who fail to survive ten years is in England and Wales 149, in the county boroughs of Northumberland and Durham 165, and in the East Region rural districts 100 only, the corresponding numbers for females being 111, 125, and 97.

Life Tables for Greater London

Complete life tables are given for Greater London—that is, the area covered by the City of London and Metropolitan Police Districts. These tables show that for males the death rates for Greater London are more favourable than for England and Wales up to age 45, and less favourable thereafter, but the differences are usually small. The death rates for females are lower at all ages in Greater London than in the country as a whole.

The mortality experience of the two constituent sections of Greater London, (*a*) London Administrative County and (*b*) the Outer Ring, has been specially investigated. The figures indicate the marked superiority of the mortality experience of the outer ring over that of the administrative county. The figures also show that the London suburban areas are subject to a much lighter death rate than the country as a whole, in respect of both sexes. It is found, in fact, when the figures are compared with those for other urban areas, that the "Outer Ring" of London is conspicuous for the lightness of its death rates over the whole span of life.

ON KEEPING FIT

THE HASTINGS LECTURE

The Sir Charles Hastings Lecture of the British Medical Association, delivered in the Great Hall of the B.M.A. House on March 10th, took an unusual form in that two lecturers—Professor Winifred Cullis and Dr. R. Cove-Smith—co-operated in dealing with the general subject of "Keeping Fit." The chair was taken by Dr. Adolphe Abrahams, and there was an attendance of about six hundred.

Proper Feeding

Professor WINIFRED CULLIS limited herself to the discussion of feeding and of exercise. Proper feeding, she said, was a matter of quality as well as of quantity, and of knowledge as well as of income. A satisfactory dietary must include, first, proteins, the so-called body-builders, and one-third of the necessary protein must come from milk, meat, eggs, or fish, the remainder from vegetable sources, bread, and other cereals, and the pulses. The second element in the dietary was fats and carbohydrates, the fats being found in such foods as butter, lard, margarine, suet, and fat of meat, and the carbohydrates in the foods containing starch and sugar. The third element was mineral matters, found, generally speaking, in fresh natural foods, milk being of particular value because containing calcium and phosphorus in the proportions needed for the building up of bone. The Londoner's habit of eating watercress was a wise one because the cress contained both iron and iodine. She reminded the audience of Dr. Helen Mackay's investigation into the health of infants which revealed a frequent deficiency of iron. Of the artificially fed infants 70 per cent. and of the breast-fed infants 42 per cent. were found to be anaemic. The addition of extra iron to the milk reduced mortality by 50 per cent. Iron was found in egg-yolk, dried peas, oatmeal, spinach, and raisins.

Coming to the subject of vitamins, she quoted William James as having said that there were three stages in discovery: first, the one in which people said the discovery was not true; secondly, the stage in which people said that, though true, it was of no value; thirdly, the stage in which they said that although of value, it was not new. There was a tendency also, if a discovery had dramatic possibilities, as was certainly the case with vitamins, to regard it on its first acceptance as a kind of cure-all, and when experience showed that it did not accomplish everything, to believe that it would accomplish nothing. Vitamins had gone through all these stages, and although it was quite certain they were essential for healthful living and proper development, many people to-day were sceptical of their real effect. It was said that folk in bygone times managed very well without them. But did they? Ancient skeletons told the tale of rickets, and the pages of history told of death from scurvy and other conditions which were now known as deficiency diseases. Part of the improvement in the infant mortality rate and part of the increase in the expectation of life was due to a better knowledge of dietetics.

The Role of the Vitamins

All the vitamins were necessary for growth, and each in addition seemed to play a special part. Vitamin A kept the membranes of the body in a healthy condition; vitamin B was specially necessary for the health of the nerve tissues; vitamin C prevented scurvy; and vitamin D was essential for the proper development of bones and teeth. A good mixed dietary provided all these, and not often in this country was there such deficiency as produced the more serious symptoms which might culminate in death. But it was possible for certain relative deficiencies to be responsible for a good deal of below-standard condition. It was well, therefore, to know in what foods the vitamins were found and what kind of trouble resulted from a shortage. The lecturer then

mentioned the food sources which were rich in the various vitamins—a list similar to that quoted in these columns from Sir Robert McCarrison's recent Cantor Lectures (*Journal*, February 29th, p. 427).

She mentioned that large-scale experiments had proved the value of an extra pint of milk a day to schoolboys whose diet was already supposed to be adequate. Since the milk was added there had been a yearly increment of height of 2.6 in., as against a previous one of 1.4 in., and of weight of 6.98 lb., as against a previous one of 3.85 lb. The supply of whole or even of skimmed milk to children in Scotland had resulted in the same sort of increase. Skimmed milk, with its right proportion of calcium and phosphorus, was obviously a good source of supply for the growth of bones and teeth. In Canada an added amount of vitamin B in the form of wheat germ had produced astonishing increases in growth. If the vitamins were right, the chances were that the rest of the diet would be satisfactory. The diet should be varied, be moderate, and include every day some meat, or fish, or cheese, or eggs, also milk and butter, and fresh green vegetables and fruit. No child or young person should have less than a pint of milk a day, and if a pint were taken every day by adults also it would be all to the good.

Physiological Effects of Exercise

Professor Cullis added a few words on exercise. Just as in a town, after rain and a good wind, the dust and dirt were taken away and the clean fresh air resulted in unexpected vistas, so exercise, by bringing about improved circulation, took away the waste materials from the body cells and brought to them the equivalent of fresh air in the shape of extra supplies of oxygenated blood. She explained the mechanism of muscular exercise. But here again, she said, the keyword was moderation. An amount of exertion which quickened and deepened the breathing was good for everyone, and her "everyone" included the middle-aged woman. If the exercise could be taken in the open air so much the better. The improved health and physique of women, which was so marked a feature of the present day, was no doubt partly due to the greater amount of exercise they took. Walking, skipping, and dancing were excellent exercises within the reach of everyone, and swimming, a good exercise for the middle-aged, was no longer out of the question in these days of municipal baths. Exercise benefited the individual not only physically but psychologically. Nearly everyone knew the pleasant satisfied feeling that came after it, also that the fatigue due to a day of work and worry was sensibly lessened by exercise, particularly if taken in the company of others. But moderation must be kept in mind. To pass suddenly from a sedentary and unexercised existence into one of violent and strenuous physical activity was to ask for trouble.

Dietetic Fallacies

Dr. R. COVE-SMITH returned to the question of diet. The mistake of many people, he said, was to confuse quantity with quality. A child of two came for treatment at his clinic for badly bowed legs, and the mother said that he had plenty of porridge and bread and liked his vegetables, but questioning revealed that he never had butter or meat and only very occasionally yolk of egg. How he was expected to make muscle and firm bone from such a diet remained a mystery. Another dietetic fallacy was often seen in young people living in city lodgings or bed-and-breakfast houses, depending for most of their meals on cheap restaurants, and continually eating overcooked or twice-cooked "mush." Often they were to be seen with sore gums, septic teeth, and foul breath, due to secondary infection upon a weakened mucous membrane. As a rule this was remedied, if seen soon enough, by adequate supplies of fresh milk and fruit and by oral hygiene, but sometimes it led to gingivitis or pyorrhoea. Dr. Cove-Smith gently corrected a newly fledged M.P. who created a diversion in a recent debate on the Licensing Bill by pointing out the dire results of milk-drinking, among which he included pulmonary tuberculosis! Tobacco and alcohol the lecturer mentioned only to dismiss. Both were drugs and anodynes. Tobacco, especially cigarettes, caused irritability of the pulse if taken to excess, while alcohol was a narcotic drug which depressed the higher centres and lowered the blood sugar, so that its indiscriminate use was to be deprecated. He quoted Sir John Orr to the effect that to bring the diet of the poorer half of the community up to the standard required for health, the consumption of eggs, fruit, vegetables, and meat should be increased by from 12 to 25 per cent.

Fresh Air and Correct Breathing

Dr. Cove-Smith next drew attention to the common vitiation of air by exhaust gases in traffic blocks in the streets, excessive central heating in buildings, and inadequate ventilation and overcrowding in places of entertainment. Free nasal breathing was a very important health precaution, for air did not pass through a healthy nose as a train through a tunnel, but was warmed, filtered, and moistened, and so was less likely to damage the delicate lining membrane of the lungs. To inhale air directly into the chest through the mouth enhanced the danger of bronchitis and lung trouble. Few seemed to realize how poor postural tone, lack of concentration, and chronic ear trouble were the consequence of faulty breathing. Sometimes mouth-breathing was brought about through an atmosphere that was too dry, particularly where there was central heating or a blazing fire.

Passing to sunlight and clothing, the lecturer referred to the unwisdom of being too heavily clad, which did not give the skin a chance to breathe. The open blouse of most women was an extremely sensible fashion, but on the other hand he uttered a warning regarding the tight collar for men and for nurses and other women in uniform. The constricting collar that exerted pressure on the neck caused congestion of the cerebral blood vessels, with consequent headache and irritability.

Exercise and Rest

The value of exercise was generally agreed, but care must be taken to differentiate it from physical exhaustion. To prolong exercise to the stage of exhaustion whereby excessive products of muscular breakdown clogged the circulation was fallacious. Rhythm was one of the fundamentals of life, and rhythmic exercises that enhanced and stimulated the functions of the involuntary muscles should supersede the jerky staccato movements of the old-time drill sergeant. Military precision must be subservient to functional needs. In the normal course of events, moderate exercise with adequate rest periods taken under the rays of the sun and in the tempered breeze would lead to an increase of efficiency and bodily tone, and therefore to a better resistance to disease, but playing a game or taking part in physical training with a "temperature" in the false hope of "sweating it out" was very fallacious.

Finally, in some guidance on sleep, the lecturer suggested the importance of warm feet, light bedclothes, and moving air in the bedroom. Pavlov had demonstrated that sleep was a conditioned reflex, and, being partly mental, it depended upon the nervous system being attuned to regular habits. Lack of this educated regularity might be at the root of much of the nervousness and allied disability seen nowadays.

In many things modern civilization seemed to have got away from first principles. The art of gracious meditation had been lost. Leisure and recreation time were too often utilized in an expenditure of energy that left the individual rather less fitted than before to face life equably. Many people directed their lives towards false ideals, such as prestige and money-getting, and became prematurely old in chasing them, with resulting disharmony and the likelihood of nervous breakdown. The integration and harmonious development of personality rested fundamentally on our capacity for learning two lessons: that our own needs must frequently be subordinated to the interests of others, and that in the last resort we must be dependent only on ourselves.

Questions from the Audience

Questions were then invited from the audience and, subject to the censorship of the chairman, were put to one or other of the lecturers. The first question was whether there could be such a thing as vitamin excess. Professor Cullis replied that as long as vitamins came only from natural foods there was complete safeguard against excess, but now that there were prepared crystalline products on the market there was a real danger of getting an excess of vitamins. She hoped that the ordinary member of the public would not buy these preparations except under medical supervision.

Asked whether uncooked oatmeal could be recommended as an article of diet, Dr. Cove-Smith said that it had a value as containing a certain percentage of iron and protein, but it was not pleasant to take, and he imagined that it could be adequately replaced by many equally effective and more palatable things. Asked also for his views on the subject of hot-water bottles, he said that they had a value for warming the bed before one got into it, but he advised against their subsequent retention, except in the case of old people or people whose heat-regulating mechanism was not functioning fully. For infants, especially premature infants, the hot-water bottle was very useful.

One member of the audience was anxious to know whether the elegant and pleasant-tasting vitamin products now on the market were as effective as the "good old-fashioned greasy stuff our mothers thought so good for us." Professor Cullis replied that one would require to know precisely the value of the elegant preparation, but she was sure that a number of preparations on the market to-day were as good as the raw cod-liver oil of old. Asked the effect of canning on fruits and vegetables, she remarked that these processes were detrimental to vitamin C, which was easily destroyed, but there were newer methods of canning coming in which enabled vitamin C to be preserved, only, unfortunately, there were no means at present of distinguishing the new method from the old for the benefit of the purchaser. If a foodstuff contained a fair amount of acid it should better resist these artificial processes. Tinned tomatoes preserved their vitamin C quite well. She recommended a study of the Medical Research Council report on vitamins.

Dr. Cove-Smith was asked for his views on nudism, and replied that it was a useful cult, but in a country like this where, as someone had said, there was no climate, but only weather, it was a mode of life scarcely to be encouraged for the average individual. Asked whether active exercises might be taken with a temperature of 100°, he said that that was much too high. Any person with such a temperature should be resting. No one should be encouraged to take exercise while suffering from any degree of fever or with a chill developing.

Two final questions were put on the subject of diet. It was asked what sort of food was of most value for preserving the teeth, to which Professor Cullis replied that that question was really settled for all of us in infancy or even in pre-natal development. Probably vitamins D, A, and C were all necessary for proper dental growth. Another questioner was anxious to know at what age the infant should begin to have meat in his dietary. Dr. Cove-Smith said that weaning should be considered by about nine months, and when the child began to move about as an individual it was time to prepare its muscles for the task. Most children began to walk at about a year, and meat should be introduced into the diet before the first birthday, and having in view the possibility of nutritional anaemia liver should be given. A little meat could be added to the gravy and potatoes by the time the child was one year old.

Dr. ADOLPHE ABRAHAMS, in proposing from the chair a vote of thanks to the lecturers, said how fortunate the audience had been in having had placed before it the point of view of the physiologist in Professor Cullis and that of the medical athlete in Dr. Cove-Smith. The vote was heartily carried, as was a further vote of thanks to Dr. Abrahams himself for his very happy conduct of the chair, on the proposition of Dr. E. Kaye Le Fleming, Chairman of the Council.

England and Wales

Dinner to Dr. and Mrs. Fairbairn

On March 5th a dinner was held in the Langham Hotel to bid farewell to Dr. and Mrs. J. S. Fairbairn, on the occasion of their leaving London to reside in Lossiemouth. Over a hundred guests were present. Sir Ewen Maclean, President of the College of Obstetricians and Gynaecologists, was in the chair, and in a happy speech pointed out how much Dr. Fairbairn had furthered the cause of the teaching and practice of midwifery throughout Britain. He expressed the regret at the retirement of Dr. Fairbairn from active practice, and assured him of a warm welcome whenever he came back to London. Messages of appreciation and regrets for absence were read from distinguished obstetricians who, owing to distance, could not be present. Dr. Herbert Spencer in a witty speech referred to the attraction London has for Scotsmen. Miss Pye, President of the Midwives' Institute, spoke of the support which the cause of the midwives had always received from Dr. Fairbairn. This was referred to by Lady Richmond, speaking on behalf of the Central Midwives Board. Sir William Willcox, Master of the Society of Apothecaries, spoke in warm terms of the affection in which Dr. Fairbairn was held by his colleagues, and paid a graceful tribute to the influence of Mrs. Fairbairn. Dr. Fairbairn on rising to reply was greeted with song and cheers. He expressed the pleasure it gave him to be received by so many of his colleagues on the various Boards on which he had served. He preferred to say good-bye and "go when the going was good." He would always carry with him the memory of such a welcome and farewell, and it would do much to ease the sorrow of parting. A silver rose bowl with an album of signatures was presented to Dr. and Mrs. Fairbairn by the chairman on behalf of the guests present and those colleagues who were unable to attend.

Isolation Hospital Accommodation in Middlesex

The Minister of Health has approved, with modifications, a scheme submitted to him by the Middlesex County Council under Section 63 of the Local Government Act, 1929, for the provision of adequate isolation hospital accommodation for infectious disease (including small-pox) in the county. The scheme as approved provides, so far as infectious diseases other than small-pox are concerned, that the county shall be divided into eleven areas. In each of these areas hospital accommodation consisting of not fewer than a specified minimum number of beds for patients from the area falls to be provided by the authority or authorities whose districts are included in the area. In three instances the district of a single local authority will form the hospital area. These districts are the boroughs of Hendon and Willesden and the urban district of Harrow. The remaining eight areas consist, respectively, of the districts of two or more local authorities. The County Council will, under the scheme, be the authority providing hospital accommodation for small-pox for the whole administrative county.

Developments at Harrogate

Proposals for the development of the Harrogate Spa area, involving an estimated expenditure of £200,000, are under consideration by a special committee of the town council. In addition to the extension and modernization of the Royal Baths, the scheme provides for linking up the Valley Gardens with the Crescent Gardens and the erection of a new Pump Room. The need for "alterations on a large scale" at the Royal Bath Hospital to permit the institution "to keep its position in the front rank of the national fight against rheumatism and its allied diseases" is indicated in the recent annual report of the medical staff. The nature of these alterations has not yet been disclosed. The research department of the hospital, in its report, states that the pathogeny of rheumatoid arthritis (this condition is the principal subject of study in the department at the present time) has not yet been adequately explained and that no specific

therapy is known, but that spa treatment affords alleviation in many cases. A plea is made for more cases to be sent to the hospital in the early stages, thereby facilitating research into this disease and its treatment.

Venereal Disease: Continuity of Treatment

The Ministry of Health announces that the personal card, Form V 15 (Diagnosis and Treatment of Venereal Diseases), has been revised, with a view to securing that the particulars of each case and of the various treatments given are recorded in a more uniform manner than hitherto, and on a clearly defined basis. It is suggested that this revised card should be used in order to secure continuity of treatment in the case of patients removing from one area to another, and particularly in the case of those whose occupations necessitate their travelling about the country, and who are thus unable to attend regularly at the same treatment centre. The particulars indicated on the card should be filled up by the medical officer of the treatment centre, and the patient should retain the card in order to present it to the medical officer of the next centre attended. Provision is made for the systematic noting during each period of treatment of the medical officer's findings in respect of the stage of the disease, the nature and localization of the lesions, and any complications or symptoms of intolerance to treatment. In this way the work of successive medical officers dealing with a case and the choice of suitable courses of treatment should be facilitated.

Scotland

Clinical Medicine at Edinburgh

On the retirement, some fifteen months ago, of Professor Edwin Bramwell from the chair of clinical medicine in the University of Edinburgh a temporary appointment was made of Professor Edwin Matthew, who was retiring from charge of wards under the age limit. This latter appointment is due to terminate on March 31st. The University Court last session appointed a special committee to consider the situation in regard to the clinical teaching of medicine in its relation both to the Royal Infirmary and to the municipal general hospitals of Edinburgh. It is noteworthy that none of the members of this committee is a teacher either of medicine or of clinical medicine, and many people have expressed the opinion that the University would have been well advised if some of its many graduates possessed of experience in these subjects had been consulted. Briefly the recommendations of this committee are as follows: that the professor of clinical medicine should be placed as director in executive charge of the medical department of the municipal general hospitals and should continue to take his share in the clinical lectures in the Royal Infirmary and remain on its staff, although not having charge of wards there; also that the wards in the Royal Infirmary thus left vacant should be placed under the charge of the professor of medicine, thereby giving him a double charge with three assistant physicians and two clinical tutors. It may be explained that at present there are in all eight physicians to the Royal Infirmary, including three who are also professors respectively of medicine, clinical medicine, and therapeutics in the University, and that all these eight have at present equal charges with one assistant physician and one clinical tutor each.

Chemical Elixirs of Life

Professor I. M. Heilbron, who gave the Jubilee Memorial Lecture of the Society of Chemical Industry at Edinburgh on February 28th, suggested that chemistry might hold the clue to the control of old age and sex, to the cause of cancer, and to other important matters. The study of the complex chemicals found in plants and animals was leading science back to conceptions not far removed from the mediaeval alchemist's dream of a life-giving elixir. This group of natural substances were known as sterols. Closely connected with these was vitamin D, which was necessary for the growth of bone and the production and maintenance of sound teeth, an important group of heart stimulants which had only lately been chemically investigated, and the glandular substances controlling male or female sex characters. There were also indications that the sex hormones had a profound influence on the maintenance of health. Many of the lowest forms of life had been shown to contain active substances closely related to vitamin D, and their widespread importance suggested that chemistry might hold the clue to many vital problems through the administration of artificially prepared chemicals.

Health of Glasgow School Children

The annual report on the medical inspection and treatment of school children in Glasgow, by Dr. George Arbuckle Brown, senior deputy medical officer of health, states that if allowance is made for slight differences in average age of the children at the date of inspection the heights and weights in nearly every age group are higher than any recorded during the past fifteen years; and, further, that the figures relative to the average nutritional condition of the children are definitely the best recorded since 1919. The attendances for treatment at school clinics showed considerable reduction as a whole, although there were some temporary increases, apparently due to the severe climatic conditions which prevailed in December, 1934, and also to the short epidemic of influenza early in 1935. The introduction of the daily milk ration in March, 1935, is referred to as having apparently augmented the average rates of increase in height and weight of the children during the latter part of the session. The medical officers made 2,419 visits to the schools for the purpose of systematic routine inspection, 48,033 children being examined in the ordinary schools and 1,765 in the schools for physically and mentally defective children. In addition, 13,248 children especially presented by teachers and others on account of suspected defects were examined and 21,785 were re-examined as "abnormals." A newer method of assessing the results of routine medical inspection in the ordinary schools by classifying the individual children according to the presence or absence of remediable defects is represented by special tables, which show that children free from irremediable defects constituted 95.6 per cent. of the 48,033 children inspected in 1935, as compared with 94.3 per cent. of those inspected in the previous year. The total number of attendances at school clinics was 423,967—a decrease of 7.6 per cent. on the previous year. This figure is held to be significant of improved health and economic conditions.

Aberdeen Post-Graduate Course

The Aberdeen Medical School has arranged a course of post-graduate study on endocrinology at the Marischal College, Aberdeen Royal Infirmary, and the Royal Aberdeen Hospital for Sick Children, on Tuesdays and Thursdays, at 3.15 p.m., from April 21st to June 18th, both dates inclusive. In order to enable practitioners, if possible, to attend the complete course of instruction, the lectures and demonstrations given on Tuesdays will be repeated on Thursdays. The fee for the course will be £3 3s. Those desiring to take part in it should notify Mr. H. J. Butchart, secretary of the University, Aberdeen, not later than April 15th.

Central Midwives Board for Scotland

At a recent meeting of the Central Midwives Board for Scotland Dr. Robert Cochrane Buist of Dundee was elected chairman and Professor R. W. Johnstone of Edinburgh deputy chairman. The meeting appointed other committees and also examiners for the ensuing year, and approved, subject to inspection by the Board, the list of recognized institutions with the teachers attached thereto for the training of pupil midwives.

Reports of Societies

TREATMENT OF ADDISON'S DISEASE WITH SALT

At a meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on March 10th, with Dr. DOROTHY C. HARE, the president, in the chair, Dr. GEORGE GRAHAM opened a discussion on the treatment of Addison's disease with salt.

Dr. Graham traced the history of this treatment, and described the characteristic changes in metabolism, circulation, and blood concentration in suprarenalectomized animals following the withdrawal of cortical extract. There was a fall in plasma volume and blood flow, and a rise in blood urea, blood oxygen capacity, and plasma proteins. He suggested that cortical extract might prove valuable for shock. It had been shown that there was an increase in the blood potassium and the sodium chloride output, and that dogs could be kept alive some days longer if given salt or sodium acetate injections. It was the sodium and not the chlorine that was involved. In 1932 Loeb had discovered that when the suprarenal glands were removed there was an escape of sodium, and with it chlorine, from the blood. Since then Addison's disease had been treated with salt. It was as if there were a leakage of sodium, which could be stopped by cortical extract ; or additional sodium could be given. In the last two years there had been five cases of Addison's disease in St. Bartholomew's Hospital. The first patient had died within a few days. The second patient was a man aged 34, with very marked pigmentation and a blood pressure of 80/50 ; he was able to sit up, and suffered from severe vomiting. His blood sodium was just under 300 mg. per cent. After one dose of salt he had been able to sit up in bed and read the paper. He had gone out of hospital much better, but unfortunately he had contracted a febrile illness and died without anyone notifying the hospital that he was ill. The third patient, a woman aged 33, had been less typical, and had suffered the same fate. It was important to keep in touch with these patients when they left hospital. The fourth case, a man aged 28, with very great pigmentation, had had a blood pressure of 94/56 and a blood sodium of 312 mg. per cent. The benefit of salt had been less dramatic, and he had later received large doses of the extract. The fifth patient, a woman aged 45, had had a blood pressure of 100/70, a blood sodium figure of 285 mg. per cent., and a blood urea content of 92 mg. per cent. The amount of sodium given must be increased, but some patients could not take enough sodium chloride. They should therefore be given other salts of sodium—the phosphate citrate, or lactate, for example. In St. Bartholomew's Hospital they were now given 0.5 gram each of sodium chloride, sodium bicarbonate, and sodium acetate six times a day, making a total of 5.6 grams of sodium. If these patients contracted a febrile illness their dose of cortical extract or salt must be increased.

Dr. S. LEVY SIMPSON said that the use of cortical extract in Addison's disease had the serious disadvantages of high cost and the necessity for injections and for giving large amounts owing to weak concentration. It was not therefore unexpected that the introduction of salt therapy should be received with enthusiasm. The enthusiasm had, however, been moderated by experience, and the limitations of the therapy were becoming obvious. This did not mean that the treatment was not based on sound experimental and biochemical work, nor that undoubted benefit might not result in some cases. Of the adrenalectomized dog Loeb and his colleagues had written: " When cortical extract is completely withdrawn the sodium level cannot be maintained even by the administration of as much as 0.3 gram of salt per kilogram daily." This was equivalent to 20 grams of salt for a patient weighing 9½ st. Of five patients taking 10 grams of salt daily in addition to that in their diet, Loeb and his colleagues stated: " Their blood sodium levels remain within normal limits, and they are able to lead very much more active lives than before their salt therapy was instituted. They suffer from easy fatigability. They have occasional nausea, they feel the cold intensely, and pigmentation is little if at all changed." In one patient 20 grams of salt daily did not raise the blood sodium, and the clinical response was poor.

Dr. Levy Simpson then described six cases of Addison's disease which had come under his observation, and which illustrated the value and limitation of salt therapy. He drew the following conclusions: (1) salt by mouth might be of real value in the acute, subacute, and chronic phases of Addison's disease ; (2) salt might be of no apparent value or the benefit might be so slight as not to be appreciated by the patient ; (3) the emetic action of the chloride might prevent oral administration, but sometimes other salts overcame this difficulty ; (4) 10 grams of salt daily was as much as most patients could possibly take, but sometimes 20 grams or more was necessary ; (5) cortical extract in adequate dosage by itself, or in addition to salt therapy, gave a much better clinical response than salt alone ; (6) when the dose of cortical extract was adequate, salt was of no benefit, but when the dose of extract was inadequate, the addition of salt might help appreciably ; (7) when patients had gone into a crisis in spite of large doses of salt, cortical extract had produced recovery ; and (8) it was possible to get signs and symptoms of adrenal insufficiency although the serum level of sodium chloride and potassium appeared to be within normal limits. These conclusions were in keeping with experimental evidence. It was now well established that the cortical hormone regulated the balance of sodium, chloride, and other minerals. The increased drainage and excretion of these elements associated with adrenalectomy could be completely corrected by cortical extract. This could only be a question of dosage. If one imagined the human body to be a receptacle from which, in addition to the normal inflow and outflow, an excess of sodium escaped through a leakage, cortical extract acted by repairing and stopping the leakage, whereas the administration of salt by mouth was a frantic effort to keep pace with the abnormal loss. No one could be satisfied with the concentration of the cortical extract at present available, since the large doses necessary for more severe cases rendered its use difficult and sometimes impracticable, but with the crystallization of the essential element there would be no other treatment for Addison's disease than that by cortical hormone.

Dr. E. N. ALLOTT described the blood chemical changes in eight patients with Addison's disease. This study had shown that before treatment the chemical syndrome of low sodium and chlorine and high potassium and urea was found in all cases. Treatment with salt was not able in all cases to restore the blood electrolyte picture to normal and maintain it. Treatment with cortical extract seemed to affect the potassium and urea much more strikingly than the sodium and chlorine. In some cases where there was no very marked change in the sodium and chlorine there was evidence of blood dilution, shown by a fall in the serum protein and haemoglobin.

Vitamin B_1 Content of Human Diets

Dr. AUDREY BAKER read a paper by herself and Dr. MARGARET WRIGHT on the estimation of vitamin B_1 values in certain published diets. The work of Cowgill, she said, had shown that the vitamin intake must be related to the total calories and to the weight of the individual, and he had evolved a formula as a result of his work on the dog, pigeon, rat, and mouse. Now that there was an international unit it was possible to make an assay of various foodstuffs. Dr. Baker showed first a series of charts of diets which had been known to produce beri-beri. One diet was found on analysis to contain only seventy-one international units per person per day, and this had been associated with over 4,000 cases of beri-beri in Bilibid prison, Manila. An improved diet had been instituted, and the beri-beri had almost but not quite disappeared ; this diet was found to contain 163 units. In a mental hospital 106 per thousand of the patients had developed beri-beri on a diet containing 438 units.

but it was possible that the patients had not eaten all that was provided for them. A diet containing 90 to 180 units had resulted in 1,000 cases of beri-beri in the Dutch East Indian Navy ; when this was increased to 253 units the European members were found not to be protected although the natives were protected. It was clear that no one specific intake protected all individuals from beri-beri ; a protective diet might vary from 145 to 500 units per day according to the weight of the eater. A relatively low level would suffice to protect the light-weight Chinese coolie or Philippine islander.

Analyses had also been made of a number of published diets recommended as suitable. Barborka's skeleton diet gave 343 units, but this was meant to be supplemented. The B.M.A. " bare ration " gave 212 units for a diet of 2,460 calories, and the committee definitely stated that it thought this diet was deficient in vitamins. The diet which it believed to be sufficient in minerals and vitamins, and representative of a typical working-man's diet when there was no shortage of money (Individual Diet No. 2) gave 440 units of vitamin B_1 for 3,060 calories. Cowgill's formula was for adults, and it seemed that children needed higher values. In the B.M.A. diet for a child from 3 to 6 years of age 298 units were provided. Simmonds's sample diet for a child of 11 gave from 606 to 657 units. The diet recommended for Poor Law children's homes by the Ministry of Health's Advisory Committee gave 450 units per child for 2,749 calories. The highest vitamin content ot any published diet was that recommended by Theobald for pregnancy toxaemia. This gave 1,520 units. Barborka's high vitamin diets yielded from 872 to 1,012 units and Simmonds's high vitamin diet about 700 units. It had been shown that pregnant animals needed three to five times as much B_1 as normal animals. In the intermediate zone between the minimum diet that would protect from beri-beri and the level desirable for the maintenance of health the B_1 content of the mixed diet depended on an informed selection of foods. Such factors as dislike, difficulty of preparation, indigestibility, and economy, which determined the rejection of some foods, might bring the B_1 content of a diet below the level physiologically necessary.

PHLEBITIS AND ITS TREATMENT

At the meeting of the Medical Society of London on March 9th, with Sir THOMAS DUNHILL in the chair, the subject of discussion was phlebitis.

Mr. A. DICKSON WRIGHT said that the association of phlebitis with so many conditions suggested that there was no one cause. An attempt had been made to incriminate *B. coli* and spore-bearing organisms, but the cultivation of organisms from affected portions of a vein had never been convincingly achieved. On the Continent there had been an endeavour to class phlebitis as a metabolic disease, with cholesterol as the villain of the piece, and consequently a tendency to treat the disease with " cocktails of endocrines " in a purely light-hearted and empirical fashion. The treatment was often combined with the spa treatment of Bagnoles, a rather fantastic ritual without any logical scientific basis, and giving the usual good results to be expected in an intermittent complaint.

Forms of Phlebitis

Mr. Wright proceeded to discuss essential thrombophilia, undoubtedly a definite entity, with a tendency for arteries as well as veins to be affected ; thrombophlebitis migrans, which he thought not as rare as was commonly supposed ; traumatic phlebitis, a well-known form of which occurred in the axillary and subclavian veins, the result of prolonged weight-carrying and downward-snatching injuries ; suppurative phlebitis, a few cases of which had unfortunately occurred following the injection of contaminated solutions into varicose veins ; Buerger's disease, another definite clinical entity ; mesenteric thrombosis ; familial phlebitis, and other forms. Secondary phlebitis occurred from medical, surgical, and obstetric causes. All prolonged prostrating illness might be thus complicated. In his own experience typhoid fever was the most frequent medical illness to be followed by phlebitis, and pneumonia, influenza, and malaria came next.

He had seen three interesting cases of femoral thrombosis occur in rheumatic fever in children aged 5, 9, and 14. Leukaemia was well known to cause thrombosis of the veins. He had seen two severe cases of femoral thrombosis occur during strict medical treatment of duodenal ulcer. Among surgical causes of phlebitis, post-operative cases were in the majority. The condition seemed much commoner in some hospitals than in others, and to occur in minor epidemics. He recalled an instance in which within a fortnight in one hospital there were eight cases of pulmonary embolism, three of them in simple hernias, and it was no less than the truth to say that the hospital was panic-stricken. Germany and Sweden had a bad reputation for this disease, and in German hospitals it appeared to be the complication most to be feared. Catgut had been mentioned as a possible cause of post-operative phlebitis, and in the hospital in which the eight cases occurred German catgut was used. Fractures of the legs or pelvis always produced thrombosis to some extent, and this led partly to the troublesome swelling after removal of plaster and splints. No operation was immune from this sequel, not even operation for cataract. As for obstetrical causes, thrombosis of normal and varicose veins occurred commonly in the later months of pregnancy, and puerperal cases provided the largest number of all forms of secondary phlebitis in the speaker's experience.

Deep Vein Thrombosis

Speaking of deep vein thrombosis in the leg, Mr. Wright discussed two factors contributing thereto—namely, changes in the blood itself, and retardation in the blood supply. At present nothing could be done to hasten the return of the blood to normal, and injections of anti-coagulin were rather disappointing, but retardation of blood flow was a different matter, and much could be done to remove this important factor in post-operative and puerperal stasis. He commended the Fowler position. Early sitting up after operations and after childbirth had much to recommend it, but the nursing profession and the public were very hostile to this practice. He could recall among the Chinese race no case of puerperal thrombosis, and in that race childbirth, among the poorer classes at any rate, was not an excuse for going to bed for more than a few hours.

Thyroid treatment for post-operative thrombosis had been followed, a high protein diet being given at the same time. He always adopted thyroid medication in cases in which there was a personal or family history of phlebitis. In the treatment of deep phlebitis, posterior tibial cases as soon as diagnosed should be bound in elastoplast from toes to groin, and sometimes a femoral extension could in this way be stalled off ; if it did not occur, fourteen days in bed was sufficient, and the patient was then allowed up in a supportive adhesive bandage which was retained as long as the swelling demanded.

Superficial Phlebitis

Coming to the commonest type, superficial phlebitis, Mr. Dickson Wright said that this usually occurred in varicose veins rather than in normal veins, and was of two types: simple and ascending, the former as a rule being mild. Superficial phlebitis was much more often a spontaneous complaint, not occurring secondarily as deep phlebitis did. Some cases of phlebitis of varicose veins were due to focal sepsis, which should be searched for and cleared up. While an innocuous complaint in the ambulant subject, it had a definite risk when he was in bed. With the aid of a cinematograph film Mr. Wright described the treatment which he adopted in superficial phlebitis. The veins affected were covered with 2-in. strips of adhesive, the object being to get a greater pressure over the inflamed portion than over the rest of the leg. A rubber sponge was placed at the upper end of the thrombus and fixed by a strip of elastoplast to prevent the clot from sliding off in an upward direction. The plaster was worn for a fortnight, and generally at the end of that time the patient was well. The bandaging

was carried out with a considerable degree of pressure, and if the case was one of ascending phlebitis he used two layers of rubber and put on still more pressure. He had now treated over 500 cases of superficial phlebitis by this method, many of them of the ascending type, and in no case had the treatment failed to give excellent results. Practically all the patients continued at their work. He referred finally to the "embolophobia" which possessed many of these patients: he had seen cases of nervous breakdown result from the vivid description of embolism given to them by their doctors.

Endocrine Control

Dr. A. CAWADIAS protested against Mr. Wright's slighting reference to Continental theories of phlebitis as a metabolic disease. There was no doubt that the pituitary had a certain regulating role on the metabolism of the veins, and he had found very often in phlebitis cases symptoms of dysfunction of the pituitary gland. The condition often occurred in families, and that suggested some metabolic basis. Gouty phlebitis was very frequent, though often misdiagnosed as rheumatism. He stressed the value of physical treatment, especially infra-red radiation, for the sequels of phlebitis, and he believed in spa treatment.

Mr. W. MCKIM MCCULLAGH said that at the Samaritan Hospital during the period 1930–5 there were 7,063 operations, and only five cases of pulmonary embolism; these operations included 1,133 hysterectomies. In some other hospitals he had noticed a much higher rate, and he was quite convinced that a number of the deaths were due to improper technique with regard to sepsis. Improper preparation of the skin had been, he knew, in one hospital associated with a high death rate from embolism. Mr. CECIL WAKELEY said that about five years ago Sir Bernard Spilsbury delivered a Harveian Lecture in which he said that sepsis played no part whatever in the production of pulmonary embolism. Yet he supposed surgeons had many cases which strongly pointed in that direction. He wished to know whether there was any treatment for thrombosis of the inferior vena cava—most frightening cases in their development of glycosuria and heart failure.

Spa Treatment

Sir THOMAS DUNHILL, taking up the reference to Bagnoles, said that he believed there was a great deal of value in physical medicine and spa treatment, though he sometimes thought that French and German spa physicians were better able to "get it across" the patient than their colleagues in this country. With regard to the subject in general, one of the appalling things that happened to a surgeon was to have a case of simple appendicitis which was apparently going on well, in which just when the patient was going to get up a pulmonary embolism revealed itself, with a fatal result. That had happened in his experience, rarely it was true, and it happened in the experience of all surgeons. He had also had a few non-fatal cases after thyroid operation. With regard to the people who came to the out-patient department with a cyanotic swollen arm, he had not realized as Mr. Wright had suggested that this might be due to burden-carrying or strain, and he still thought the strain factor was perhaps over-emphasized. Mr. A. C. PALMER thought that the most important predisposing cause in many of these cases was slight trauma associated with personal peculiarity. Sepsis, he believed, had little to do with it. He asked whether Mr. Wright could give any period after operation within which the condition was likely to occur.

Dr. MONTAGUE SMITH described a recent case of pulmonary embolism in an elderly subject who came for operation for removal of a volvulus. The case went on perfectly well for a fortnight after the operation. On getting up the patient complained almost immediately of pain in the right shoulder. He was kept in bed for a further fourteen days, and then allowed to get up but not to walk at all, and on the second or third such occasion he sank back dead. Cases of pulmonary embolism appeared most often to occur in persons with large flaccid abdomens, in which, he supposed, large blood clots in the veins might occur easily.

Thrombophlebitis Migrans

Dr. A. H. DOUTHWAITE could not agree that thrombophlebitis migrans was at all a common condition. It had only been recognized within the last few years. The main point about it was the pulmonary complication, the clotting and phlebitis in one of the smaller pulmonary veins. It produced a traumatic effect, causing a pain probably as bad as anything that could be experienced. So far as he knew, all these cases of thrombophlebitis migrans recovered, but the pain was so excruciating that it had to be relieved by large doses of morphine, repeated for many days on end. He was familiar with Sir Bernard Spilsbury's statement that sepsis played no part in the production of pulmonary embolism, and yet, watching cases with a temperature persisting slightly above the normal, he could not help feeling that sepsis was a factor.

Mr. HOPE CARLETON recalled that when he was in America at the Mayo Clinic the idea gained prevalence that pulmonary embolism was due to the giving of soap enemata. Thereupon an instruction was given that soap enemata were not to be used, but the rate of occurrence of pulmonary embolism for the next period showed exactly the same incidence. The association with sepsis seemed also a subject in which experiences were contradictory. Mr. D. H. PATEY said that the great difficulty of dealing with pulmonary embolism was that it was a complication relatively so infrequent, and had nothing to do so far as one could tell with the technique of the surgeon, that one hesitated to adopt a complicated procedure which would probably be unnecessary, when there were so many other more immediate preoccupations.

Opener's Reply

Mr. DICKSON WRIGHT said that what applied to Bagnoles might equally apply to Margate, and while he did not detract at all from physiotherapy as a method of treatment, it was more a hobby than a cure. As regards phlebitis being of pituitary origin, this was purely a supposition. With regard to inferior vena cava thrombosis, the amazing thing was that the patient ever got over it. The cases he had had were practically all due to typhoid fever. Lilienthal in New York gave any patient in whom he anticipated haemorrhage a big dose of citrate before operation, giving it intravenously, and said that it made operation on a deeply jaundiced patient very safe. As for the period during which post-operative emboli developed, this was most often from the seventh to the fourteenth day, but cases had occurred in which the development was much later. He agreed that obesity was an important predisposing cause; it must interfere with venous return. He saw many cases of thrombophlebitis migrans affecting the legs; they were of long duration, lasting many months, even years. The effect of a good holiday was amazing in these cases. He had been asked about penile thrombosis occurring after prostatectomy; this was part of a general thrombosing process and a very fatal form of the disease. As for ligation, this was indicated only in suppurative phlebitis; in superficial phlebitis it was redundant and no safeguard against embolism.

PROBLEMS IN GENERAL PRACTICE

At a meeting of the Liverpool Medical Institution on February 27th, with the president, Mr. G. C. E. SIMPSON, in the chair, a series of short papers on problems in general practice was given.

Psoriasis

Dr. R. M. B. MACKENNA discussed the treatment of psoriasis, indicating the features of the disease by lantern slides. He mentioned certain definite precautions which should be taken by persons prone to this disease: they should not wear tight clothing; they should avoid alcohol, foods containing spices, and fatty foods; and in most cases they should obtain as much exposure to sunlight as possible. After briefly outlining the prophylactic measures which a patient could reasonably take with a view to prolonging the periods of freedom from the eruption, Dr.

MacKenna passed on to consider the treatment of a severe attack in the stage of efflorescence. He emphasized the necessity of adopting an expectant line of treatment, and particularly stressed rest in bed as a measure which was usually omitted, but which often did more good than any other measure. He discussed the internal and local treatments in the acute or chronic stages of the disease, and after a few remarks on the uses of mercury sulphide injections he concluded by a brief mention of the methods by which treatment of psoriasis of the hair and of the nails might be carried out.

Dr. F. GLYN-HUGHES said that in regard to Dr. MacKenna's remarks about the work done in Germany which supported the idea of faulty fat metabolism in psoriasis, up to two months ago it had been his own practice in Belmont Road Skin Hospital to put all his psoriasis patients on a fat-free diet, and he was satisfied that this had decreased the time required to clear the skin. Lately he had gone further, and had restricted these patients to a milk diet; he had been very pleased with the results, particularly in very chronic cases. The method had the advantage that it could be carried out at home. With reference to the use of intramuscular injections of mercury, he would like to be sure that the good results were due to the action of the drug on the disease proper and not to its action on syphilis, for it was known that the latter disease could produce lesions exceedingly difficult to distinguish from those of psoriasis. The Wassermann test in these cases was not always reliable. Dr. G. S. SWAN agreed that psoriasis was one of the bugbears of a general practitioner's life. His main object was a form of treatment to enable the patient to continue his employment. Baths twice daily, followed by complete inunction, were almost impossible outside of a hospital.

Phlyctenular Conjunctivitis

Mr. A. MCKIE REID read a paper on the aetiology and treatment of phlyctenular conjunctivitis. He described the appearance of the disease, and pointed out its association with cervical adenitis, diseased tonsils and adenoids, occasional bone and joint disease, and hilar and abdominal tuberculosis. The histological appearance of the lesion and its resemblance to that of tuberculosis were illustrated. The absence of tubercle bacilli, true giant cells, and caseation was emphasized; the onus of proving the tuberculous origin of the disease lay upon clinical and experimental rather than upon microscopical evidence. The occurrences of phlyctenules when sacs of tubercle bacilli were tied in the body of non-tuberculous animals, when external irritants such as staphylococcal toxin were introduced into the conjunctival sac of tuberculous animals, as a focal reaction after a skin test, and as a local reaction after a conjunctival test for tuberculosis were quoted in support of the theory that the disease was a focal manifestation of systemic disease, a tuberculo-toxic manifestation in the allergized ocular epithelium. The treatment was then described: it comprised the local application of ung. hydrarg. ox. flav., the accompanying catarrhal conjunctivitis being dealt with by saline lavage and 2 per cent. mercurochrome drops (zinc and silver salts were contraindicated); general measures to improve health, such as giving vitamins, hyperalimentation, artificial sunlight, and, where systemic tuberculosis was present, institutional treatment. Statistics were cited contrasting the frequency of the disease in communities where economic and industrial conditions were bad with its low incidence in prosperous districts. The opinion was advanced that the prevention of the disease was essentially a sociological problem.

Nose-blowing

Mr. JOHN ROBERTS, in a paper on the dangers of nose-blowing said that the act of nose-blowing (although accepted as a necessary civilized convention) was not physiological, because the normal path of the nasal secretions, with their entangled bacteria and dust, was backwards into the pharynx, and they were then swallowed. It seemed probable that the body, in this singular way, kept vaccinating itself against prevalent micro-organisms through the agency of the stomach and intestinal canal. By a consideration of the aerodynamics of the middle ear cul-de-sac it could be clearly shown that the forced passage of air through a constricted nasal passage could easily impel some secretion (on its way past the orifice of the Eustachian tube) up into the tympanic cavity, particularly if the tympanic membrane was absent or perforated. Clinical experience had conclusively shown the liability to acute otitis media following injudicious and forcible nose-blowing in such conditions as the common cold, measles, scarlet fever, and also in swimmers and divers.

Mr. MCKIE REID stated that vigorous nose-blowing immediately after excision of the lachrymal sac was sometimes followed by an alarming swelling of the eyelids, suggesting cellulitis. This was surgical emphysema due to the tissue planes in the eyelids, laid open by the incision, being brought into direct communication with the intranasal cavity. The condition resolved quickly on the application of pressure pads and the abstention, for a day or two, from nose-blowing. Dr. W. B. BENNETT considered that the safest method was to "blow" each side of the nose separately, somewhat after the practice of the manual labourer, who closed one nostril with his finger while he cleared the other, which remained open. A handkerchief could, of course, be held near the nose. Dr. R. J. MARTIN added that blowing the nose was an expiratory movement resulting from irritation of the nasal mucous membrane. While normal ciliary action propelled debris downwards to be disposed of by the acid gastric juice, this mechanism often needed assistance during modern conditions of town life, and this was provided by the acts of sneezing, coughing, and blowing the nose. The danger of forcible nose-blowing arose when infected mucus lay at the entrance to the Eustachian tube, and infection of the middle-ear cleft was particularly likely to occur in those cases in which a dry perforation already existed in the tympanic membrane.

The Tonsillectomy Problem

Mr. H. V. FORSTER discussed tonsil function and the attitude to tonsillectomy. He said that knowledge of the physiological function of the tonsils was by no means complete; particularly since the publication of Kaiser's work in 1932 there had been a more critical attitude to tonsillectomy. This was also to be noted in the view taken by some officers of the school medical service. The idea of the protective function of the tonsils had been steadily gaining ground, though the work of Schlemmer modified the outlook. Since the experiments of Glimstedt, who bred animals in a sterile environment and found that the secondary follicles did not develop until the animals were faced with the infections to be found under normal conditions, the Hellman Buggrian view of the secondary follicles as reaction centres had been advanced. K. A. Heiberg and Viggo Schmidt appeared to hold similar views founded on evidence of destruction of lymphocytes in the follicles. Thorsten Skoog, in a more recent work, had tried to find out if there was evidence of antibody production in the tonsils. He had come to the conclusion that, compared with other organs of the reticulo-endothelial system such as the spleen and bone marrow, the tonsils were not capable of any considerable degree of antibody production. They exerted a sensitizing effect on the reticulo-endothelial system, but after repeated tonsillar affections they probably lost their physiological function. An attempt should be made to distinguish between a fault of the reticulo-endothelial system and one of the local tissue. In children the tonsil problem was often associated with the adenoid problem. Cases could be roughly divided into two groups: those with stenosis and those with a complaint of infections. To relieve obstruction was a definite indication for operation; the prevention or amelioration of infections was a problem deserving very careful study. To remove tonsils to lessen the incidence and severity of the specific fevers in children had been found to be justified in faucial diphtheria; both Nordwell and Kaiser had come to this conclusion. Graham Brown had advised the wide application of tonsillectomy as a prophylactic against this disease. The operation had no definite influence in scarlet fever. In respiratory ailments

the incidence of pneumonia and bronchitis might be higher according to Kaiser. The younger age groups showed better results as regards the common cold, as they did in rheumatism. In rheumatic carditis the disease was found less often and to be less severe in the tonsillectomized, though occurrences were not avoided in those already attacked. In the adult repeated acute attacks of tonsillitis and peritonsillitis when only a local cause could be found were definite indications for the operation, as also in remote disease when there was an adverse tonsil history; but, without such a history, had the results been controlled in patients when the same regime of rest in bed and enforced starvation had been instituted with the added effect of an old-fashioned seton to simulate the vaccination process from the bare tonsillar fossae? Dohlman had asked this question, and had further written at some length to stress the importance of the physician recognizing his responsibility in advising tonsil removal in remote disease, while the laryngologist was at the disadvantage of seeing the patient in the quiescent period. The throat specialist could not easily advise tonsil removal on the local evidence of the expression of a few plugs from the tonsillar crypts. Kahler had said that the first duty was a thorough examination of the indications so long as the physiological function of the tonsil was not yet quite clear. This advice should determine the attitude to the operation.

Septic Fingers

Mr. H. C. W. NUTTALL read a paper on septic fingers. After referring to the frequency of infections of the fingers and the liability to disabling sequels owing to patients not seeking advice early enough, he gave a brief classification of the conditions, dividing them into minor and major, with suggestions as to which were suitable for treatment by practitioners and which at a hospital. Then followed a brief summary of treatment under the following headings: prophylactic ; acute stage ; restoration of function ; and sequels, with the idea of showing the large variety of methods which were available in any particular case. Four special conditions were then discussed by Mr. Nuttall in more detail, illustrated by diagrams on the blackboard: superficial abscess ; paronychia ; pulp abscess ; and thecal sheath infection. Attention was drawn more particularly to the applied anatomy and technique of incisions. Summarizing the principles of treatment he stressed the need for an adequate incision which opened up the whole length of an abscess, infected area, or sheath. He pointed out that, contrary to the opinions of several Continental authors, it was of very little practical value to assess disabilities in terms of percentages. It would obviously be absurd to compare a musician with a dock labourer. In the county courts it was commonly the practice to bring forward men doing similar work with a similar disability for purposes of comparison. Mr. Nuttall added how instructive it was to observe what could be done by men suffering from various disabilities where no compensation was involved, though at first sight it might be thought that they would be almost totally disabled. He cited several examples.

TREATMENT OF RAYNAUD'S DISEASE

At a meeting of the Devon and Exeter Medico-Chirurgical Society held on February 26th, with the president, Dr. A. HIPWELL, in the chair, a discussion took place on the treatment of Raynaud's disease.

Mr. NORMAN LOCK described a patient on whom he had performed cervical and lumbar ganglionectomy for the relief of symptoms due to Raynaud's disease.

The patient, a young unmarried woman aged 19, was shown to the meeting. She had had cold hands and feet from earliest childhood, and had suffered considerably from chilblains. Lumbar ganglionectomy was performed on December 22nd, 1934, and since then the feet had maintained a normal temperature. Pain was experienced in the feet and legs for a short period after the operation, but this responded to massage. On December 3rd, 1935, right cervical ganglionectomy was performed, three inches of the posterior end of the right second rib being removed for this purpose. The stellate ganglion was identified and dissected out, some difficulty being experienced in the process of dissection owing to a pleural adhesion at this point. She complained of considerable pain in the right arm for some two or three weeks after operation, but this had now disappeared. On February 7th the operation was repeated on the left side.

The patient expressed herself as greatly benefited, and whilst there had been severe chilblains with several ulcers on the left hand, the circulation appeared to be normal in this hand as well as in the feet and the right hand.

Mr. Lock added that constipation, which had been troublesome prior to the lumbar ganglionectomy, had proved more amenable to treatment since that operation. The patient herself had felt so relieved by the first operation that she had presented herself voluntarily for the cervical ganglionectomies.

Discussion

Dr. CHARLES SEWARD was impressed with the results obtained. He had seen the girl as an out-patient, unable to walk owing to the tenderness of the feet and hands, which had been cold even in summer. Mr. A. A. GAIRDNER regretted that special tests—to differentiate those cases which operation would be unlikely to benefit—were only possible in institutions specialized for carrying out these difficult and complicated investigations.

Cases of Hodkgin's Disease?

Dr. J. C. FULLER read notes on three cases where the general features had much in common with Hodgkin's disease, but where in several points the diagnosis was by no means conclusive.

Case A.—A male, aged 54, had noticed for three to four years painless enlargement of the glands in the axillae and groins. His complexion was sallow, but the blood examination had shown no important changes. The cervical, axillary, and inguinal lymphatic glands were enlarged, discrete, and not tender. A mass of glands could be felt in the abdomen, but the spleen could not be palpated definitely. The Wassermann and Kahn reactions were negative. Section of an inguinal gland had shown a general lymphoid hyperplasia, the typical giant-cell formation of lymphadenoma being absent.

Case B.—An unmarried female, aged 39, gave a two-years history of painless enlargement of the axillary glands, "fullness in the stomach," and "tightness in the neck." The cervical, axillary, and inguinal lymphatic glands were enlarged, discrete, and painless. A mass of glands was palpable in the abdomen, the liver was not enlarged, and the spleen could just be palpated. The blood findings were suggestive of an atypical leukaemia, although a section of the gland showed the presence of endothelial and giant cells.

Case C.—A male, aged 43, gave a history of swelling of the cervical glands for seven weeks and shortness of breath for some two days before admission to hospital. There was a history of "a positive blood test" and rash on the chest in 1928, and he had been given six courses of injections. He was cyanosed on admission, and there was venous engorgement of the chest, back, and arms. A lump the size of a plum could be felt above the right clavicle, and the left side of the neck was swollen. A dull area could be percussed extending one fingerbreadth beyond each border of the sternum. The percussion note was dull over the right pulmonary apex, and the breath sounds were absent. The breath sounds over the left apex were distant. The spleen could be palpated ; the abdominal reflexes were absent ; the Wassermann and Kahn reactions were strongly positive. More recently he had developed thrombosis of the right brachial vein and oedema of the arm. The blood count showed: red blood cells, 4,070,000 ; colour index, 1 ; white blood cells, 15,800. The radiograph of the chest showed a rounded, smooth shadow projecting outwards and backwards from the right root region (which was homogeneous) and 7 cm. from the mid-line. Deep *x*-ray treatment had been instituted within the past week.

Dr. CHARLES WROTH said that the outlook was by no means favourable as regards treatment by deep *x* rays in cases where the disease was so generalized as has been noted in this series. Although immediate relief might be expected in dealing with the enlarged glands more or less superficially placed, deep-seated recurrences were liable to appear in the liver and at other sites where deep irradiation was impossible.

GRAFTING IN GYNAECOLOGY

At the February meeting of the Section of Obstetrics and Gynaecology of the Royal Academy of Medicine in Ireland Dr. BETHEL SOLOMONS reported a case of grafting of ovary from one woman to another in addition to grafting a piece of functioning endometrium from the uterus of one into that of the other. This was the first occasion on which the report of such an operation had been published. Menstruation followed after years of amenorrhoea and after grafting alone ; much hormonic treatment had been tried and had failed.

The President, Dr. J. F. CUNNINGHAM, said that this was probably the first time that an operation such as had been described by Dr. Solomons had ever been performed. It was extremely interesting to hear of a graft of ovary and of endometrium being made at the same time. He thought that it had usually been found that a graft of an ovary into the rectus muscle had failed ; the ovary did not live very long. The graft often gave rise to pain, and a cystic swelling sometimes appeared later in the rectus muscle. It was interesting to note that the endometrium had an effect on the ovary, as well as the ovary on the endometrium. Dr. Cunningham thought it very likely that the endometrium was a ductless gland, and would have this effect. He wondered if it was the patient's own ovary which was now functioning, in which case the result would be likely to be more permanent. The patient's own ovary might have been stimulated by the operation ; this would have an effect on the endometrium, and the endometrium in turn react on the ovary. It was fairly easy to graft endometrium but very difficult to graft ovarian tissue. Dr. T. M. HEALY remarked that the members ought to be proud of a section in which there was produced work of the kind done by Dr. Solomons. He suggested that Dr. Solomons should follow up this case and report later on the behaviour of the endometrium. It would be interesting to know the degree to which the uterus was covered with endometrium in six or eight months' time, and whether it was behaving as normal endometrium did in the ordinary individual. Dr. A. W. SPAIN said that it would be interesting to know why the first graft had failed. It seemed to him that it was the ovary in this case that was important and not the endometrial graft. A difference between the grouping of the blood of the donor and of the patient might explain the failure of the graft on the first occasion and its success on the second occasion. Dr. G. C. DOCKERAY mentioned that he had been investigating blood agglutinins, and referred to blood groups M and N and MN. These groups were of no importance in blood transfusion, but had a significance in problems of heredity, as had also groups A and B. It has been stated that the M and N and the MN groups were not of any importance for skin grafting ; he supposed that this would apply to any other type of graft.

Dr. BETHEL SOLOMONS, in reply, expressed the opinion that a graft lasted two or three years. He did not remove the whole of the diseased ovary, which was so atrophic that it appeared useless, but he had excised a piece for histological investigation. He believed that the menstruation was due to the presence of the grafted ovary and the endometrium. He would certainly follow up the history of the patient, who had already had several menstruations. He thought that the first graft had failed because of the absence of endometrium.

Dr. Melly, in charge of the British Red Cross ambulance unit from the neighbourhood of Lake Ashangi, reports on March 14th heavy losses of stores and material as the result of air bombing. Ten tents have been totally destroyed and twenty-five are perforated and unusable. All but two weeks' supply of medical and surgical stores are destroyed. A hundred wounded are being treated daily. Native personnel from the Kenya and Somaliland border who, subsequent to bombardment, requested to be repatriated have left for Dessie in charge of an officer returning to their own country. This information is supplied by the British Red Cross Society, 14, Grosvenor Crescent, S.W.1.

CORRESPONDENCE

The number of letters received for publication is so large that we must ask correspondents to make their points briefly and to regard 600 words as the upper limit of length.

Supracondylar Fracture of the Humerus

SIR,—Mr. G. R. Girdlestone writes (*Journal*, February 22nd, p. 349), " it is sometimes wise to wait a day or two before attempting reduction of the fracture," and again, " it is indeed fruitless to reduce a supracondylar fracture until one can put the elbow in flexion above a right angle." It has been my practice to reduce at the earliest possible moment, but I cannot agree that it is necessary to put the elbow up in full flexion. It was my custom at Guy's to reduce all such fractures on the *x*-ray table, and it could be seen on the screen in quite a large percentage of cases that when once an adequate degree of reduction was secured deformity did not recur, whatever the position of the forearm.

This is only partly true, as in some of the more oblique fractures the lower end of the upper fragment will slip forward when the elbow is extended beyond a right angle. In each case this can be tested by screening in the lateral position on the *x*-ray table and moving the forearm up and down while one watches the relative position of the broken ends.

This is my view, founded on personal experience, and it is what I have taught for years. I wish others would try it out, and if I am wrong tell me so. My belief is that if one has really reduced the deformity the fragments impinge so firmly that movement at the elbow takes place before movement at the fracture. In other words, the degree of flexion of the elbow does not markedly influence the position of the fracture. I believe this to be axiomatic. One should never depend upon one particular position for the maintenance of alignment.

I used to believe that ischaemic contracture was mainly due to swelling of the soft parts at the elbow ; I now feel, with Mr. H. A. T. Fairbank, that non-reduction of deformity is a factor of some importance. It has been my practice if I cannot secure reduction with the elbow at a right angle to reduce deformity by open operation. My chief difficulty has been, in either closed or open methods, to restore the carrying angle, particularly if there is lateral displacement of the lower fragment.

Only one ischaemic contracture was recognized in my wards, and I was not responsible for the treatment of the case until the contracture had developed. I am not sure whether this is an argument for or against my view, of which I should be glad to hear criticisms.—I am, etc.,

London, W.1, March 10th. C. H. FAGGE.

Pulmonary Trauma

SIR,—In his paper on " Pulmonary Trauma," Dr. W. E. Cooke (*Journal*, March 7th, p. 461) has called attention to an aspect of lung disease which is not adequately dealt with in textbooks. Nevertheless it is still true that the most common result of injury to the chest wall is contusion of the tissues of the chest wall, and (if the injury is severe enough) fracture of the bony cage. I cannot agree with him that damage to the lung without evidence of injury to the thoracic wall is at all common ; it does occur, but what may happen in cases of death outright by accident (as in some of the instances he describes) is not necessarily germane to the more practical

problems which arise in survivors from an injury to the chest.

The medico-legal repercussions of trauma to the chest wall and lung in patients who survive an accident are important, and difficult problems of liability may arise. A year or two ago a man who while at work a few days before had received a blow on the back of the chest from a piece of iron was sent to my out-patient clinic with a diagnosis of pleurisy. There was no bruising of the chest wall and no fracture of the ribs. On the fourth day after the injury (which at the time it happened was not considered serious) he felt a sharp pain on deep inspiration at the base of the lung on the side on which the blow had fallen. He had never complained of chest trouble before; some hours after the injury he had coughed up a little blood, and later the pleuritic pain developed. He had a temperature of just under 100° F. when I saw him; there was a pleural rub at the base of the injured side posteriorly, together with signs of consolidation. An *x*-ray film revealed a basal shadow, which was regarded as due to a patch of pneumonia. On both clinical and radiological grounds it was clearly not a case of massive collapse of the lung; and the subsequent history, with a mild illness and rapid recovery, made it difficult to think that the blow had caused a true bacterial lobar pneumonia (Litten's "contusion pneumonia," or "traumatic pneumonia"). The most likely explanation is that there was localized "bruising" of the lung, with a secondary irritative reaction round the extravasated blood, mild fever, pleurisy, and the signs of local consolidation.

Such a process throws light on the possible connexion of trauma with phthisis, suggesting a pathological basis for the vaguer conception of "a lowering of the patient's resistance, locally or generally" which is sometimes put forward. In a lung with so-called "healed phthisis" a bruising with even diffuse microscopical damage may easily open up a hitherto closed but still infective process; and if there is haemorrhage into a bronchus there is always the possibility of some dissemination of the disease into other parts of the lung, though the danger may not be great. I have seen a case which suggested this sequence.

A youth of 22 was known to have an old tuberculous apical lesion which was regarded as quiescent. He was in good health, and right up to the accident was able to do work which involved the moving of heavy cases. One day at work he was hit on the back of the chest by a falling packing-case when he was bending down, and knocked sprawling. I did not see him until some six weeks after the injury, and I could not discover whether there had been any bruising of the chest wall; there was nothing in the history to suggest massive collapse of the lung. Within a few hours of the blow he began to cough up small amounts of blood, and a day or two later he had acute pain under the site of the injury, aggravated by deep respiration. After the accident, however, he began to flag, developed a persistent cough, and when I examined him he had active phthisis, with *x*-ray shadows of recent patchy tuberculosis in both lungs.

It is possible, of course, that the active phthisis was coincidental with the injury, and indeed that it may already have been present before the accident happened; but careful questioning disclosed no symptoms to support such a view. So far as I know the case never came to litigation, but I imagine that a court of law, presented with these facts, would say with reason and common sense, *post hoc propter hoc*.

Dr. Cooke, perhaps purposely, did not discuss massive collapse of the lung following trauma; is not Case 5 in his paper an example of this complication?—I am, etc.,

Liverpool, March 9th. ROBERT COOPE.

Caesarean Section

SIR,—Miss Margaret Basden's report (*Journal*, February 22nd, p. 358) on forty-five cases of infected labour treated by Caesarean section, and the correspondence in your issue of February 29th, when read in conjunction with Dr. Bright Banister's address at the Melbourne Meeting before the Obstetric Section last year, illustrates the still wide divergence of opinion held by obstetricians in the treatment of these cases. All are gratified by any advance that eliminates craniotomy, but examination of the facts and the deductions made from them must be carefully considered.

First, I would emphasize the fact that Miss Basden's cases, and also those of the other writers, have all been treated by highly skilled obstetricians. As has been pointed out before,[1] such services are not everywhere available, these cases coming into the hands of surgeons (as distinct from obstetricians) who may or may not take all the special precautions and employ the special technique, with perhaps very different and more unfortunate results, as has been shown elsewhere.[2]

Secondly, the biological statistician would point out that the number of cases is small, and also that the sample is a "selected" one as distinct from a "random" sample, and the deductions drawn from the former are extremely untrustworthy. Miss Basden's forty-five cases in eleven years do not include all the cases which might or might not have had this treatment: her skilled selection was at work. A "random sample" would be one collected of similar cases from the work of other operators.

Lastly, the comparison is of relative mortality with the operation of craniotomy, generally a most dangerous one. But that is where in many cases the obstetrician does too much. I am speaking here mostly of "failed forceps" cases and cases of slight disproportion. The line I submit here is simple perforation only, and then expectant treatment with morphine, warmth, fluids, etc., and in some cases a light weight for continuous traction. By this treatment one has converted an abnormal case into a normal one as far as the actual delivery is concerned, and we, I think, all agree that time is our best asset in normal though prolonged labour.—I am, etc.,

Norwich, March 11th. ARTHUR CROOK.

REFERENCES

[1] Browne, F. J.: *Lancet*, 1932, ii, 7.
[2] Department Committee Report, Ministry of Health, 1930–2.

Co-operative Medicine

SIR,—Your instructive and stimulating leading article (February 29th, p. 420) on irregular practice provokes an attempt to restate your theorem in other terms, and in so doing to suggest at least a partial solution of the problem. In this matter I try to write as one who has had a scientific training and has the greatest faith in its value, but also as a general practitioner who has painfully had to realize that scientific medicine is not always the only thing required to cure his patients.

Believing in the truth of the scientific method, it seems obvious that scientific medicine must be overlooking some important factors, and you do well, therefore, to call attention to the need of "paying closer attention to the mental and emotional make-up of the patient." I think, however, that this can hardly come simply by "psychological knowledge acquired in the same way as medical knowledge." This may help, but the matter is more truly expressed by the dictum which used to be current that medicine is not only a science, but an art. I believe that

this is still true, and that it is the duty of science to recognize it and try to recapture the art. To the decay of this art is largely due the recrudescence of the quack.

Scientific medicine is now the goal of our endeavours, yet it is interesting to note how the more we seek this ideal the further we tend to stray from the path. Of first importance is the teacher. He, as of consultant status, probably never sees a case as a general practitioner does. Cases are seen in the rush of the out-patient department, surrounded by nurses in the wards, or through the eyes of the doctor who sends them to the consulting room. I find that the commonest complaint of patients after they come from hospital is that they never really saw their doctor to speak to, and so "of course" they could not just say what they wished to. After a private consultation the usual lament is that they forgot most of the things they wished to say, and their *pensées d'escalier* may have been of great importance in revealing their "mental and emotional make-up." The consultant has done his utmost to diagnose the case, but he has seldom really got near to the patient. Many have so grown up in this detached and rarer scientific atmosphere that they quite overlook the existence of any other. Some few realize it, and bewail that their very eminence in medicine prevents them getting that close contact with the patient which the general practitioner sometimes wishes he could avoid. The one has knowledge without much opportunity to practise the art (and therefore not much likelihood that he will impart it); the other has slowly to acquire the art while all too often he is losing his grip on the knowledge he has acquired. The result is a medical curriculum which largely ignores the demands of general practice, however suitable it may be for specialists (I use that word here advisedly); and general practitioners feel bewildered that their medical training proves of so little practical use to them at first, and therefore naturally fail to develop that confident outlook which, as you observe, the patient expects from his doctor. Furthermore, the more truly scientific they are the worse is their position in this respect.

It is, I fear, almost hopeless to expect anything useful to be done about the curriculum—that would need a complete reorientation of medical teaching, and anyhow it would be of no use to us who are already qualified. I hope that some day even that may come, but meanwhile we must realize that as general practitioners the great teaching hospitals are practically closed to us, and the wedding of art and science, if it is to be done at all, must be done elsewhere. Actually this ought to be one of the functions of the British Medical Association, and for this it is joined by large numbers of newly qualified men every year; but I believe that the almost unanimous verdict would be that in this particular at least it fails miserably. After long thought on the problem of how to glean from the older practitioners some of that immense store of medical art and clinical wisdom that so many of them possess, and at the same time to stimulate us all to a keener and more scientific interest in our work, I venture to make the following suggestion as a way in which the B.M.A. might help.

Briefly put, my suggestion is that the smaller hospitals (cottage hospitals) of the country should band themselves together into little groups of half a dozen or so, according to the geographical circumstances, and that once every winter each hospital staff should be "at home" to the staffs of all the other hospitals, as well as to any surrounding practitioners not on such staffs. The first few meetings would largely be occupied in looking round the strange hospital, comparing notes, etc., and generally getting to know what work was actually being done, and also in making personal contacts. The real aim, however, should be for each hospital staff to provide a clinical meeting in which could be shown interesting cases, new points of technique or clinical examination, new treatments or remedies discussed, results recorded, criticisms and suggestions made, or helpful anecdotes related. After the meeting a cup of coffee, etc., would give the opportunity for the shyer members to make their comments more personally, or to pick the brains of others to their mutual advantage. In the larger towns these points are partly covered by medical societies, but in the country we have absolutely nothing; yet the old country practitioner is probably more full of clinical shrewdness than any other through having to depend on his own resources, and in existing circumstances all this wealth of wisdom will die with him. The spirit of emulation should make each hospital staff do its best for its one evening in the year, and if the staff of another hospital visit you, well, the least you can do is to return the compliment. By this means much of the present isolation and competition of private practice (especially country practice) would be broken down, and withal would come a greater realization of the art and competence of the practitioner in dealing with many circumstances. The smaller hospitals would come into their own as cradles of the medical art, at the same time stimulating all around to a greater zeal in the science and practice of medicine.

Incidentally, this suggestion would provide a basis, from the medical side, for the federation of smaller hospitals stressed by you in your leading article (February 29th, p. 419) on the Voluntary Hospitals Commission. That is all to the good, but it is obvious that I do not envisage the smaller hospitals—as you seem to do—as small scattered units trying to ape the larger ones, but as places where, with a somewhat restricted clientele (in that cases beyond their scope will be sent elsewhere) and restricted technical equipment, medicine will be practised as an art as well as a science, where the patient is not simply a case but often a friend, and where, as much as possible, he will feel at home. Such an ideal may seem outworn, to use your phrase, but I am convinced that it is along this path that scientific medicine may recover much of value which it has jettisoned in its efforts to be strictly scientific, forgetting that the whole is often greater than the sum of its parts—in other words, that a patient is not a mere conglomeration of systems, but an intelligent, sensitive personality.

This letter cannot do more than touch the fringe of these great subjects, but as some members of this Division are willing to consider the concrete suggestion I have put forward it would, I am sure, be of great value to us to have the comments and criticisms of any who care to offer them. I hope that the suggestion may prove to be of value to a wider area than Mid-Cheshire. If the B.M.A. saw fit to undertake and organize the scheme I believe that it would be of help all over the country. By promoting the art as well as the science of medicine it might do more than anything else to get rid of the quack.—I am, etc.,

Winsford, Cheshire, March 6th. W. N. LEAK, M.D.

Sexual Offences Against Children

SIR,—In the issue of the *British Medical Journal* for March 7th is an article on children's moral welfare calling attention to the work of a committee of certain London boroughs. I do not think that sufficient attention has been devoted to the kind of work this committee undertakes. Examples of gross sexual maltreatment of very young children have been brought to my notice so horrid that they are hardly believable; they would be a disgrace to the lowest form of savage life. These offences are committed by sexual perverts, some, but not all, mentally

deficient. When conviction is obtained imprisonment may follow, but, as your article indicates, a fine only may be inflicted. If these aggressors are mentally deficient they should be permanently secluded in appropriate institutions; those not proved mentally deficient should be imprisoned for long periods during which they may receive appropriate treatment: there should be no question of fine only.

The unfortunate little victims may be infected with some form of venereal disease and, equally important, may be inducted into a life of prostitution in the quite early stage of their lives with all the degradation that implies. For those children the greatest care and sympathy is required, which kindly and large-hearted women can best give.

I write this note to suggest that in other centres such committees as that mentioned in your article should be established, and should receive the support of local governing bodies.—I am, etc.,

GILBERT BARLING.

Birmingham, March 12th.

A Society for the Protection of Science and Learning

SIR,—The Academic Assistance Council was formed in May, 1933, to assist scholars and scientists who, on grounds of religion, race, or opinion, were unable to continue their work in their own country. Its services have been needed chiefly to help the 1,300 university teachers displaced in Germany, but it has also assisted refugee scholars from Russia, Portugal, and other countries.

In co-operation with other organizations the council has assisted in permanently re-establishing 363 of the 700 displaced scholars who left Germany. A further 324 are still being temporarily maintained in universities and learned institutions while seeking more permanent positions. The council has directly received over £46,000 in donations, which, with the exception of the small amount used for paying fares of displaced scholars to positions overseas, administrative expenses, and other incidental purposes, have been employed in subsidizing research by our refugee guests. The council, as the international centre for this work, has built up a place-finding organization and information service which are proving of increasing usefulness.

The council hoped that its work might be required for only a temporary period, but is now convinced that there is need for a permanent body to assist scholars who are victims of political and religious persecutions. The devastation of the German universities still continues; not only university teachers of Jewish descent, but many others who are regarded as "politically unreliable" are being prevented from making their contribution to the common cause of scholarship.

The council has decided to establish as its permanent successor a Society for the Protection of Science and Learning, which will continue the council's various forms of assistance to scholars of any country who, on grounds of religion, race, or opinion, are unable to carry on the scientific work for which they are qualified. One function of the society will be to build up an academic assistance fund to award research fellowships, tenable in the universities of Great Britain and other countries by the most distinguished of the refugee scholars. This fund will be administered under the auspices of His Grace the Archbishop of Canterbury, the President of the Royal Society, the President of the British Academy, Lord Horder, the Hon. R. H. Brand, and myself.

I appeal confidently and urgently to all those who wish to assist in the defence of free learning and science to join the society by paying a minimum annual subscription of one guinea. I hope that many will make a larger donation, either to the society or to the fund, or will undertake to covenant with the society for a seven-year contribution, thus allowing us to recover income tax on the donations. Gifts to the fund may be earmarked if desired for the establishment of particular fellowships or studentships bearing the name of the donor. This appeal is made with the full co-operation of the organizers of the National Christian appeal which is about to be made for the destitute non-Jewish refugees from Germany, since the society will be giving assistance to only one section—namely, the scholars—among the German refugees, irrespective of their religious affiliations. It is therefore with confidence that I ask support from both the Christian and the Jewish world, and, in particular, from the University world, to place this most important part of the refugee work on a firm financial basis.

Contributions and subscriptions should be sent to me at the offices of the Academic Assistance Council, 12, Clement's Inn Passage, Clare Market, W.C.2, made payable to the "Academic Assistance Council."—I am, etc.,

RUTHERFORD,
President of the Academic Assistance Council.

March 17th.

Durham University Reorganization

SIR,—My attention has been attracted to the article in your issue of February 8th (p. 275) under the above heading. If the first draft of the statutes for the reconstituted University represents the final opinion then I can only say that it appears to make the government of medical education almost impossibly complex. Such government starts with a Medical Studies Committee, which is a committee of the Academic Board of the Newcastle division—that is, Armstrong College (Arts and Science)—and the College of Medicine. Over the Board is the Council of the Newcastle division, and these bodies are again governed by the Senate of the University with its Faculty of Medicine, and by the Court of the University, with a reference to Convocation. No doubt many committees will arise from these various bodies, and the whole scheme suggests much delay and difficulty in administration, and does not seem to me to further the best interests of medical education.

I am of opinion that medical education should be directed from its start towards a medical career, that such direction can be given to the education without departing from its cultural breadth and without diminishing the benefits of a university association. Surely the greatest possible simplicity in administration should be devised. On these assumptions I should like to have seen a University College of Medicine governed by a Council and Senate of its own, such College being responsible to the University Court.

The Royal Commission on Medical Education in Wales, 1916, of which Lord Haldane was chairman and Sir William Osler a member, recommended that "the proposed National Medical School should be organized as an independent constituent College of the University, governed by a Council and Senate of its own." It is evident that two Royal Commissions arrived at different conclusions when facing a similar problem.

I do not wish to go into detail or to argue at length on the points which I have raised. It is possibly not too late for something yet to be done in the way of emendation of the proposals. In any event I may find some who will agree with me, and I desire to put my opinion on record.—I am, etc.,

A. W. SHEEN,
Provost, the Welsh National School of Medicine.

Cardiff, March 9th.

Glycosuria of "Lag Storage" Type

SIR,—I read Dr. R. D. Lawrence's paper on "lag storage" with much interest in your issue of March 14th (p. 526). The following case of a middle-aged lady may be appropriately recorded.

On October 5th, 1932, a sugar tolerance curve was done (venous blood) The resting sugar was 0.091 per cent. and the half-hourly readings were as follows: 0.181, 0.247, 0.192, 0.091 per cent. respectively. By the end of two hours the sugar had returned to normal. I reported this as a "lag" curve, functional in type, and not potentially diabetic, but suggested that the case should be watched and the test repeated at some future date.

On February 21st, 1936, the patient was referred back to me by Dr. Geoffrey Trower of Eastbourne with typical diabetic symptoms and a resting sugar of 0.231 per cent., and the successive readings were 0.320, 0.362, 0.298, and 0.251 per cent. following 50 grams of glucose by mouth.

Perhaps Dr. Lawrence would not call my first curve a "lag" curve inasmuch as his curve is back to normal at the end of one hour, whereas mine is not normal until two hours, but I venture to think that the insurance companies are not altogether unwise in regarding a curve of the "lag" type with grave suspicion.

There are probably gradations between Dr. Lawrence's type of curve and mine, and the line of demarcation must be difficult. I do not doubt but that the insurance world would welcome a clear definition of what is and what is not a "lag" curve.—I am, etc.,

Eastbourne, March 15th. A. GEOFFREY SHERA, M.D.

SIR,—With reference to the paper under the above heading in your issue of March 14th, may I remind Dr. R. D. Lawrence that I described the type of blood sugar curve to which he refers, and to which MacLean subsequently gave the inappropriate name of "lag" curve, in an article published in the *British Medical Journal* (1921, ii, 587). I there stated that in my experience it had been associated with hyperchlorhydria, and could be produced experimentally in persons having a normal blood sugar curve by administering hydrochloric acid with the test meal. Subsequently this point was elaborated (*New Views on Diabetes Mellitus*, 1923, pp. 16 and 213), and attention was drawn to the fact that a similar curve had been found in cases of duodenal ulcer and of deficiency of the external secretion of the pancreas. Experiments with animals, showing that an alteration of the normal blood sugar curve in the same direction could be produced by injection of adrenaline (p. 46), pituitrin (p. 51), or thyroid (p. 53), were also quoted.

It would seem, therefore, that a blood sugar curve of this kind does not always arise from the same cause, and is probably not invariably produced in the same way. The explanation offered by Dr. Lawrence of its occurrence after gastro-enterostomy, and following the introduction of glucose directly into the duodenum, seems likely, but I do not think it accounts for the association of the curve with hyperchlorhydria, pancreatic insufficiency, and disturbance of the secretions of the ductless glands. In these, and particularly in the former, an alteration in the acid-base equilibrium of the portal blood is, in my opinion, the most likely cause of the phenomenon, as I endeavoured to show, and it was for that reason I called it the "portal effect" (p. 219).

I agree with Dr. Lawrence that a characteristic curve is not indicative of defective carbohydrate metabolism, and that individuals exhibiting it very rarely become diabetic. I have several patients under observation who gave a characteristic curve fifteen or sixteen years ago and are still quite well, and I know of only one who has become diabetic. It is interesting to note that a son of one of the former was found to exhibit a similar blood sugar curve about five years ago, and he, too, has remained well since. Hyperchlorhydria, duodenal ulcer, and mild pancreatic insufficiency being comparatively common, it is not surprising that a characteristic blood sugar curve should be met with in a considerable proportion of persons when it is looked for, but as the rise is often very sharp and brief, occurring within the first half-hour of the administration of glucose, it may easily be missed unless a blood sample is taken at the quarter-hour or an ordinary meal is used instead of glucose for the test. Personally, I do not see as many cases as I did in the later years of the war and shortly after, but that may be due to a difference in the age distribution of my patients, as a characteristic curve is most frequently met with in young people, and the average age of my cases is considerably higher than it was then.—I am, etc.,

London, W.1, March 14th. P. J. CAMMIDGE.

SIR,—In his article on "Glycosuria of Lag Storage Type" in the *British Medical Journal* of March 14th, Dr. R. D. Lawrence describes sugar tolerance curves of the "lag" type in patients after gastro-enterostomy, and advances in explanation of this finding the view that its occurrence "seems to be due to mere rapid intestinal absorption and not to any defect in carbohydrate metabolism."

I have been particularly interested in this question of "lag" curves, and as a result of investigations recently carried out I should like to suggest that there are two other possible explanations of the phenomenon. First, a very similar type of curve can be produced by limiting the carbohydrate intake; and it seems not improbable that the same effect might result in the case of gastro-enterostomy either from modification of diet or from intestinal hurry. Secondly, I have been able to observe the same form of curve in cases suffering from infection.

A more detailed consideration of these two factors will be attempted in a paper which I am at present preparing for early publication.—I am, etc.,

C. WALLACE ROSS,
Resident Medical Officer.

Children's Hospital, Birmingham,
March 16th.

Ciliary Neuralgia

SIR,—Mr. Bedford Russell's main complaint appears to me to be due to his separation of one paragraph of my paper from its following context. In referring to the very difficult type which I call "chronic neuralgia of the jaws," I condemned the frequent intranasal and antral operations, which in this class of case are useless. Alcohol injection and root resection of the trigeminal nerve are equal failures in these cases, as I stated in the paragraph that followed the one Mr. Russell quoted.

I should be the last to suggest that accurate diagnosis of the various pains about the face and head is an easy matter in all, or even the majority, of cases, but if I have only separated out from the ruck of "atypical neuralgias" the forms which I have labelled migrainous neuralgia and sympathetic hemicrania I shall be satisfied that a small advance has been made in diagnosis, and therefore an increased probability of relief from appropriate treatment.—I am, etc.,

London, W.1, March 14th. WILFRED HARRIS.

Misuse of Vaso-constrictor Drugs

SIR,—A note of warning is needed with regard to certain proprietary preparations containing adrenaline and ephedrine which are flooding the market at the present time. They are in the form of sprays for the cure of asthma, or oils or drops for nasal troubles. Some are advertised in the lay press, while others are brought to the notice of doctors and chemists, and all make extravagant claims as to the permanent cures they can effect.

Adrenaline and ephedrine are most valuable drugs when employed in the proper manner, but the continued and indiscriminate application of either to the surface of any mucous membrane is likely to be fraught with disastrous results. Unfortunately the immediate relief these preparations give is startling and delightful, and hence arises their seductive power upon members of the public. To make them still more seductive some contain an alkaloid of opium. *Facilis descensus Averno,* and the Avernus in this case is a pitiable one. Adrenaline and ephedrine have an immediate vaso-constrictor effect when applied directly to the mucous membrane, and this brings instant relief to discomfort in the nose, or asthma in the bronchial tubes; but reaction follows, and the vaso-constriction gives place to increased dilatation, when a further application of the remedy is necessary. The duration of the constriction becomes gradually reduced, and in the end a condition of aggravated dilatation is produced, when the ordinary remedies which previously gave relief are found to be valueless. It is piteous to see an increasing number of cases in which patients' lives have been made absolutely miserable by the use of these remedies.—I am, etc.,

London, W., March 12th. ALEXANDER FRANCIS.

Actiology of Gastric Ulcer

SIR,—Two opposite conditions are said to predispose to gastric carcinoma: (1) gastric ulcer with its accompanying hyperchlorhydria, and (2) achlorhydria. The incidence of cancer increases with age, and there is possibly an inherited predisposition. The incidence of achlorhydria increases with age, and there is sometimes an inherited predisposition. The only cases of cancer of the stomach that I can personally recall were all in subjects that had previously been treated for gastric ulcer, the treatment consisting of oils and alkalis given to produce achlorhydria. Can it be possible that it is the artificially produced achlorhydria, together with the ulcer, or, to go further still, the treatment of the ulcer which is a predisposing factor? Perhaps case sheets and the post-mortem room would show that gastric cancer follows ulcers under treatment rather than the undiscovered, untreated ulcer.—I am, etc.,

Southsea, March 12th. E. GRANGER, M.B.

Status of the Radiologist

SIR,—Mr. A. P. Bertwistle's letter in the *Journal* of March 14th (p. 558) appears to misinterpret my views so entirely that I am unable to refrain from correction. The first paragraph of his letter requires no comment.

Dealing with the question of "whitewashing" the stomach, Mr. Bertwistle does not appear to appreciate the fact that I associate this technique with Gilbert Scott and his co-workers in contradistinction to those who associate themselves with the Akerlund and Berg schools. I can find nothing in my letter of February 24th (*Journal,* March 7th, p. 502) which offers any criticism of pioneers of this work. On the contrary, I praise the work of the "whitewashers" school of Scott, and ask the present-day followers of the Berg method in this country to be more conservative in their claims for the so-called "new method." Recently it was recorded by an exponent of the Berg technique that no ulcer of the stomach or duodenum need go undiagnosed when employing this method. Truly a high standard to create! The statement is, moreover, grossly inaccurate and misleading, as indicated in my previous letter.

Squashing of the mucous membrane by metal cones has, I suspect, led to distorted appearances of the mucosa in some instances, producing evidence simulating ulcers which, in reality, may not exist. One feels that the general practitioners should know of these possibilities now, and therefore Mr. Bertwistle's observation, "ill timed and in bad taste," is unfortunate.—I am, etc.,

London, W.1, March 14th. NORMAN P. HENDERSON.

Recruitment of Medical Men in a National Emergency

SIR,—I have read the letter of Lieut.-Colonel Walsh in this week's *Journal* with the greatest interest. In view of the present uncertain political horizon his letter raises points of the greatest importance to all Territorial Reserve medical officers, and is of no less importance to all general practitioners. With the experience of 1914 before us, it is not an unreasonable conjecture to assume that national conscription would be introduced practically straight away after mobilization under the above circumstances, all medical men of military age who were physically fit would be called up, leaving the older ones and lady doctors among the civilian population. In view of this contingency some definite plan of campaign for looking after the medical needs of the civilian population and for safeguarding and working the practices of the men on active service should be thought out and prepared. This would involve the co-operation of bodies such as the British Medical Association, Insurance Acts Committee, and Ministry of Health, who are best fitted to carry out this important task.

In conclusion, I would most strongly urge the immediate training of all medical men in the prevention and treatment of gas casualties amongst the civilian population.—I am, etc.,

J. B. SCOTT, *M.C.*, T.D.,
Putney, S.W.15, March 13th. Lieut.-Colonel R.A.M.C.(T).

The Training of Nurses

SIR,—Letters to the *Times* have drawn attention to the hours of duty of hospital nurses. A more serious matter is the added study required to attempt the qualifying examination of the General Nursing Council. The syllabus of subjects for examination seems to be an epitome of the medical curriculum, excluding morbid anatomy but with additional items, such as ward management and bed-making, suitable for nurses. The questions in the last examination, the papers of which I have had the privilege of seeing, seem for the most part to be devoted to the causes, symptoms, complications, and treatment of disease. With little alteration they would be suitable for a qualifying examination in medicine and surgery.

It is difficult to understand to what purpose a large amount of the knowledge required for the examination can be put; but if such knowledge is regarded as necessary some system of education different from the present will have to be adopted. The average actual working time of a nurse in training in a London hospital is given by a letter to the *Times* as sixty-seven and a quarter

hours. In addition, within the space of three years she has to acquire a wide textbook knowledge of medicine. This kind of knowledge is not acquired in the wards, and it is clear that with these long working hours in the wards a mere prolongation of the period of training would be futile. Some time for study must be found. A letter to the *Times* suggests a three-shift system. There are administrative difficulties to this scheme. Moreover, the method could not always be followed when the nurse passes into practice, and it is not wise policy to make the period of training much easier than the work of later life. The alternative seems to be statutory periods in school. Most of the London and some of the provincial hospitals require a preliminary training period before admission to the wards. But much more than this is necessary. It is essential to relieve nurses of serious study while on full duty in the wards. One method might be a second period of study in the school, of at least three months' duration, just before the first examination is taken, and a third period before the final examination. During the second period anatomy and physiology and other ancillary subjects should be completed and the requirements of the next stage of training should be taught. These consist largely of the methods of application and administration of remedial measures. They can be taught on simple models or dummies. A nurse should not be passed for registration who cannot prepare for an emergency operation. The simple operation of blood transfusion will not be seen by every nurse during her training, but it is essential that she should be familiar with it. The whole procedure can be efficiently taught on models. After this second period of tuition a nurse should be able to carry out any ordinary nursing duties in a ward and should have a general knowledge of the procedures required of a nurse in private practice. If not, the teaching has not been efficient.

Much relief could be obtained by eliminating non-essential things from the syllabus ; but if the knowledge of medicine, surgery, and the rest which the examination papers of the General Nursing Council seem to require are regarded as necessary, a third period of school is needed. Even with this addition the knowledge can only be acquired by cramming. The subjects cannot be efficiently taught in the time at disposal. Assuming for an accepted standard that they can be, a total period of nine months' tuition in the school must be provided for, and this extra time of necessity extends the period of training to a minimum of four years. This period is already demanded by some hospitals. It would be well to make it statutory.

Since study should not occupy the whole of a day, nurses at school might be used to relieve nurses on full duty and reduce the number of hours of ward work to the maximum of fifty-six per week, suggested by the President of the College of Nursing in a letter to the *Times*. An increase in the number of nurses would be required, but not to a greater extent than that of other methods which have been suggested. The school method indeed would, I believe, prove to be the most economical method, and would provide nurses better trained for private practice.

A word as to cost. The cost of the extra schooling ought not to be borne by the nurse. The remuneration in practice is not sufficient to repay much in the way of capital outlay. At a large teaching hospital on the board of which I served it was impossible to get enough suitable girls prepared to pay even a preliminary training fee. Nor should the expense be borne by the hospital. Although hospitals benefit financially by the use of nurses in training, it is not desirable that charity funds should be used for pure tuition. The funds for school administration must be obtained from other sources. An efficient nursing service is a public need and should be assured by public funds. It would thus seem that a Government grant, as for university and other educational purposes, and administered in a similar way by such a body as the Universities' Grants Committee or by the General Nursing Council, ought to be obtained.—I am, etc.,

Tunbridge Wells, March 4th. C. R. MARSHALL.

Euthanasia

SIR,—Dr. Guyon Richards, in his letter in the *Journal* of March 14th, entirely evades the issue of the "lethal dose," which he raised in his previous communication, and discusses instead the relief of pain in the case of the dying, where we are all *d'accord*, and how far in doing so life is shortened or lengthened, which is quite beside the question of the deliberate termination of life. I am glad to recognize that Dr. Guyon Richards's standards of medical practice appear to conform both to the general practice of his profession and to the law of England.—I am, etc.,

London, S.W.1, March 14th. REDMOND ROCHE.

"Dialectical Materialism"

SIR,—I do not think it has yet become generally known that, apart from the realms of politics and economics, Soviet Russia claims that in its official philosophy, dialectical materialism, it has made important contributions to the subject of scientific method. Dialectical materialism does not seem to be easy to expound, and different writers give different interpretations of its principles. But there are two of its fundamental laws that appear to me to be of special significance—the law of the interpenetration of opposites, which enunciates that opposites are found permeating the whole of reality and that they not only exclude but include one another ; and the law of the unity of contradictions, which teaches that "we must seek the contradictions in the processes of nature and society ; for everything is put into motion by contradictions."

To the best of my knowledge these principles have up to the present been confined to the study of politics and economics, and have not been applied in the different departments of physical science or in medicine. The laws seem, in fact, to have been invented in order to assist the exposition of the Marxian conception of economic history, and could, I consider, be looked upon quite correctly not as new creations but as aspects of the logic and scientific method we already know. But the laws of the interpenetration of opposites and unity of contradictions do lay emphasis upon a mode of conceiving problems which may be of considerable importance in medicine. I can see, for example, possibilities of application to many of the vexed questions of clinical psychology which may go far to help to lift this subject out of the *impasse* it has reached.—I am, etc.,

London, W.1, March 6th. FREDERICK DILLON.

"Anthropophobia"

SIR,—The manifesto on war, signed by 350 international psychiatrists, in the *Journal* of October 12th, 1935, contains the following words:

"There is in the world a mentality which entails grave dangers to mankind, leading, as it may, to an evident war psychosis. War means that all destructive forces are set loose by mankind against itself. War means the annihilation of mankind by technical science."

Persons who deliberately encourage the setting loose of destructive forces "by mankind against itself," whatever

their motives, and all those who aim at "the annihilation of mankind by technical science" or otherwise, are obviously subject to that condition known as anthropophobia.

Anthropophobia, or the fear, aversion to, or hatred of, human life, has become very widespread in recent years. Moreover, it is increasing. The fantastic preparations for war that are going on all over the world show this; and the tacit acceptance everywhere of the view that future wars will take the form of poison-gas attacks on the crowded populations of large cities is a further proof of the same conclusion. It would almost seem that the whole civilized world has suddenly devoted itself to the worship of Kali, the Destroyer. In view of this amazing modern outlook it should occasion no surprise that a recent issue of a British journal devoted to aviation justifies the bombing of Red Cross ambulances on the ground that they were engaged in the work of "reconditioning cannon fodder." A war spirit of this kind is not the only sign of the intense anthropophobia that is at present affecting the body politic and influencing the actions of a large number of otherwise kindly hearted and benevolent persons. The advocacy of sterilization, contraception, abortion, and euthanasia is equally the result of a morbid outlook upon life, particularly human life, characterized by an unconscious wish to destroy it. All these modern movements aimed at preventing and destroying human life, whatever the ostensible motives put forward to justify them, are further manifestations of anthropophobia.

The rapid spread of anthropophobia is a phenomenon that merits immediate and careful investigation, for this condition obviously entails grave dangers to mankind in general and to Great Britain and the British Commonwealth especially. I would like to suggest therefore to Drs. A. J. Brock, G. H. Alabaster, W. Thomas, S. Vere Pearson, Redmond Roche, and many others whose letters in the *Journal* I have read with interest, that the time has come to organize a society for the express purpose of collecting data and stimulating research into the factors underlying the problem of anthropophobia. I venture to think that an investigation of the sort I have in view would be productive of most interesting and valuable results. It may possibly be found that anthropophobia is a morbid mental condition resulting from a hormone or vitamin deficiency or from some other form of malnutrition. Certain known facts point to this. It has been proved, for example, that domestic and experimental animals often develop a tendency to destroy their kind, especially their young, when deprived of certain essential food substances. As regards human beings it is a well-known fact that the great majority of suicides and murders are the result of pecuniary difficulties; and war is admittedly due very frequently to economic pressure. (Economic pressure in the community is the equivalent of malnutrition in the individual.)—I am, etc.,

Cairo, Feb. 29th. CHAS. A. BENTLEY.

⁂ We would refer those interested in "anthropophobia" to Dr. Edward Glover's little book *War, Sadism, and Pacifism*.—ED., *B.M.J.*

Charles Nicolle

SIR,—With reference to the obituary notice of Professor Charles Nicolle in your issue of March 7th (p. 486) it is noteworthy in view of the present state of international affairs that, like another great French scientist and author, the late Professor Charles Richet, who protested against the imbecility of war in his well-known work *L'Homme stupide* (1919), Professor Nicolle was an enthusiastic pacifist. In a section headed "Infectious Diseases as a Lesson of Solidarity among Men" of his last book, *Destin des maladies infectieuses* (1933), of which he kindly sent me a copy, after denouncing the criminality and wastefulness of war, he alluded to the history of malaria and diphtheria among the numerous examples in which international collaboration had benefited mankind. I may add that Professor Nicolle was elected an Honorary Fellow of the Royal Society of Medicine in 1934.—I am, etc.,

London, S.W., March 10th. J. D. ROLLESTON.

Dysentery on a Pleasure Cruise

SIR,—I was interested to read the letter of Dr. J. R. B. Hern headed "Dysentery on a Pleasure Cruise" in your issue of January 4th, and the letters of Drs. H. M. Stanley Turner and L. Hill in subsequent issues. The case so well presented by these gentlemen, and particularly by Dr. Hern, is so damaging to shipping companies, and especially to the reputations of ship surgeons generally, that I am constrained to make some reply. My statements are based upon a personal experience as ship surgeon on a vessel sailing from London to India and touching many of the ports mentioned by your correspondents.

That occasional outbreaks of diarrhoea occur on board is quite true. But in my experience they are due not to carelessness or to incompetence, but almost invariably to over-indulgence in a liberal diet. It is characteristic that these outbreaks occur early in the voyage, and that they are easily cured by a dose of castor oil and a few words of advice. I quote from Dr. Hern's communication:

> "Authoritative figures are not at my disposal, but I gather that I cannot be exaggerating when I estimate the total [of cases of diarrhoea] as running into three figures. . . . It cannot in the nature of things be proved that all the other cases were bacillary dysentery, but the probability is so great that few medical men will be disposed to question it."

From the above statements one is led to infer that any number from 100 to 999 were ill with diarrhoea, and that of these any number, say, 95 to 950 (exactitude being apparently of no importance), suffered from bacillary dysentery. Surely these are statements hardly in keeping with scientific caution and reserve, and are most certainly unwarranted in view of the absence of "authoritative figures."

That an occasional case of dysentery may occur on a voyage I do not doubt; but a shipping company, even in its most ebullient advertisements, does not guarantee immunity for passengers to all the illnesses to which man is prone. To state that despite precautions—and precautions are taken—an occasional passenger will contract dysentery on board a vessel is no more significant than to state that an occasional individual will contract the illness in England. But to suggest that such a case is due to negligence or carelessness is to make a rather serious charge, particularly when such a charge is not substantiated by fact.

I am not suggesting that any laxity in the stringency of precautions aboard vessels ought to be tolerated. Even enlightened shipping authorities need to be reminded occasionally of the damage to prestige that may result from instances of established carelessness. But it is another matter to assume that each and every case of contagious illness occurring on board—in this case dysentery—is directly traceable to negligence on the part of the shipping company or any of its agents.

Might I add further that one is led to infer from Dr. Hern's letter that the surgeon on board the vessel in

question was grossly incompetent in not recognizing the case of dysentery as such. Those with any experience of dysentery will realize that it is by no means easy to differentiate dysentery from a simple diarrhoea in the early stages. Even Dr. Hern takes pains to state that he reached his conclusion as to the correct diagnosis only after a bacteriological test supplemented by serological investigation. Neither of these refinements is available on board.

Let us therefore be not too harsh in condemning the ship surgeon for his failure to recognize the occasional case of bacillary dysentery, or the shipping company for its failure to provide within vessels a bacteriolytic atmosphere.—I am, etc.,

ALAN A. KLASS, M.D., M.C.P.S.

c/o Bank of Montreal, Waterloo Place,
London, W.1, March 4th.

Plastic Surgery

SIR,—In the *British Medical Journal* of February 29th (p. 434) you refer to the fact that a department of plastic surgery has just been established in Manchester, and that "this arrangement provides the first plastic surgery centre in the North." I desire to point out that in January, 1934, we established a plastic surgery centre at the North Staffordshire Royal Infirmary, Stoke-on-Trent, under the direction of Sir Harold Gillies, F.R.C.S., and Mr. A. H. McIndoe, F.R.C.S., and that clinics have been held here regularly ever since, both for in-patients and for out-patients.—I am, etc.,

W. STEVENSON,
Secretary and House Governor, North Staffordshire Royal Infirmary.

Stoke-on-Trent,
March 10th.

Causes of Iridocyclitis

SIR,—I must apologize to Mr. Doggart for having overlooked the appendix in his list of general theories of causation in my letter to the *Journal* of February 15th (p. 337).—I am, etc.,

SYDNEY TIBBLES.

London, W.1, March 11th.

CONGRESS OF PHYSICAL MEDICINE, LONDON, MAY 12th to 16th

Twenty-five foreign countries have been officially invited by the Foreign Office, through their Embassies in London, to send medical representatives to the sixth International Congress of Physical Medicine, which will be held in London, May 12th to 16th. Belgium, Holland, France, Hungary, Russia, and the United States have formed organization committees, and will be strongly represented.

Papers will be read by British and foreign delegates upon scientific and clinical aspects of physical medicine in seven sections: kinesitherapy, hydrotherapy and climatology, electrotherapy, actinotherapy, radiology, and the teaching and organization of physical medicine in medical schools and universities.

Lord Horder will be Honorary President of the Congress, and Sir Robert Stanton Woods President and Chairman of the Executive Committee, of which Dr. Albert Eidinow (4, Upper Wimpole Street, W.1) is honorary secretary. The meetings will be held at the Royal Society of Medicine, the Hastings Hall of the British Medical Association, the Medical Society of London, and the British Institute of Radiology. An exhibition of physical medicine apparatus will be held during the week at the Cowdray Hall, College of Nursing, Henrietta Street, adjoining the Royal Society of Medicine.

On April 8th Lord Horder will take the chair at a luncheon at the Langham Hotel, W.1, and address the guests on the subject of "The Progress of Physical Medicine," with special reference to this international congress.

The Services

NAVAL MEDICAL COMPASSIONATE FUND

A meeting of the subscribers of the Naval Medical Compassionate Fund will be held on April 24th, at 3.15 p.m., at the Medical Department, Admiralty, S.W.1, to elect six directors of the Fund.

AUXILIARY R.A.M.C. FUNDS

The annual meeting of the members of the Auxiliary R.A.M.C. Funds will be held at 5.15 p.m. on Friday, April 3rd, at 11, Chandos Street, Cavendish Square, W., when the annual report and financial statement for the year ended December 31st, 1935, will be presented and the officers and committee for the current year elected.

DEATHS IN THE SERVICES

Surgeon Captain John Edwin Coad, R.N. (ret.), died at Tunbridge Wells on February 27th. He was educated at the Newcastle Medical School and at St. Thomas's, and graduated M.B.Durh. in 1885 and M.R.C.S. in 1886, after which he entered the Navy. He attained the rank of fleet surgeon on February 28th, 1903, and that of surgeon captain on July 14th, 1917. He served during the war of 1914–18, receiving the medals.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on March 13th the following medical degrees were conferred:

M.D.—R. H. Fish, M. S. Spink.
M.B., B.CHIR.—*J. R. Duffield, R. M. Yeo, W. G. Q. Mills.
B.CHIR.—C. U. Gregson, W. M. Beattie.

* By proxy.

UNIVERSITY OF LONDON

The following have been recognized as teachers of the University in the subjects indicated in parentheses:

London Hospital Medical College: Dr. Charles E. Brunton (Physiology); *London (R.F.H.) School of Medicine for Women*: Dr. Una C. Ledingham (Medicine); *St. Mary's Hospital Medical School*: Dr. Evan I. Jones (Biology), Mr. Douglas H. MacLeod (Obstetrics and Gynaecology); *British Post-Graduate Medical School*: Dr. John D. White (Radiology).

At a meeting of the Senate, on February 26th, it was resolved to institute in accordance with the regulations on University Titles (*Calendar*, 1935–6, pp. 249–60) a University Chair of Biochemistry tenable at St. Bartholomew's Hospital Medical College, and a University Readership in Anatomy tenable at the London Hospital Medical College.

It was resolved that in and after 1936 the regulations relating to the date of the examination for the Academic Post-Graduate Diploma in Medical Radiology (***Red Book***, 1935–6, p. 612, first two paragraphs) be amended to read as follows:

Part I of the examination will be held twice in each year, beginning on the Tuesday following the third Monday in March and on the second Monday prior to the first Monday in July.

Part II of the examination will be held twice in each year, beginning on the first Monday in July and on the first Monday in December.

It was resolved that in and after 1936–7 the regulations for the Academic Post-Graduate Diploma in Public Health be amended by the substitution of the following for paras. 5 and 6 on page 626 of the *Red Book*, 1935–6:

Part I of the examination will be held twice a year, beginning on the Monday following the first Friday in January; and on the first Monday in April, or, if that be a Bank Holiday, on the second Monday in April.

Part II of the examination will be held twice a year, beginning on the last Monday in June; and on the fourth Monday in September.

The regulations for the External Diploma in Public Health (*Blue Book*, September, 1935, p. 311) were similarly amended.

It was resolved that the following be inserted in the regulations for the second examination for medical degrees, Part II, for internal and external students (last paragraph,

Red Book, 1935–6, p. 275; *Blue Book*, September, 1935, p. 258):

At the practical and viva voce examinations reference may be made by the examiners to the candidates' class records. Candidates are also required to bring to the practical examination in physiology and to the oral examination in pharmacology their original laboratory notebooks in those subjects, certified by their teachers as being the actual working notes made by the candidates in the laboratory, for the inspection of the examiners should they so desire.

UNIVERSITY OF BIRMINGHAM

Lectures and Demonstrations

A course of five William Withering Memorial Lectures on the chemical and biological aspects of immunology will be given in the large theatre of the Medical Faculty Buildings, Edmund Street, on Thursdays, April 30th, May 7th, 14th, 21st, and 28th, at 4 p.m. The first, third, and fifth lectures will be given by Professor W. W. C. Topley, F.R.S., and the second and fourth by Dr. Percival Hartley. Members of the medical profession and students of medicine are invited to attend.

The Ingleby Lectures, 1936, will be given on Wednesday and Friday, May 20th and 22nd, at 4 p.m., in the medical lecture theatre, by Dr. Walter Schiller (Frauen Klinik, University of Vienna). The subject of Dr. Schiller's first lecture will be "Granulosa-cell Tumour and Brenner Tumour of the Ovary," and the second "Mesonephroma Ovarii, a New Ovarian Tumour."

Professor Arvid Wallgren, physician-in-chief, the Children's Hospital, Gothenburg, Sweden, has been appointed Ingleby Lecturer for 1937.

A course of post-graduate demonstrations has been arranged by the University Clinical Board at the General Hospital, the Queen's Hospital, and the Children's Hospital, Birmingham, on Tuesdays and Fridays, from 3.30 to 5 p.m., beginning on March 27th and ending on July 7th. The course will be given by members of the medical and surgical staffs of the hospitals, and will include demonstrations on cases. The fee is £2 2s.

In addition to the lectures and demonstrations referred to above, further courses will be held as follows: Post-graduate course in neurology, lectures and clinical demonstrations, May to July; fee £5 5s. (A detailed programme may be obtained from the Dean of the Faculty of Medicine.) Post-graduate course in industrial hygiene and industrial medicine for medical practitioners, at the University, from July 13th to 24th. Further details may be obtained from Dr. H. E. Collier, Department of Industrial Hygiene and Medicine, the University, Edmund Street, Birmingham.

An anonymous donor is placing funds at the disposal of the University for an investigation, by Professor W. N. Haworth, F.R.S., head of the Department of Chemistry, into the possibility of producing an improved form of insulin. Professor Haworth has accepted responsibility for this investigation on condition that he is assured of adequate co-operation in certain directions.

UNIVERSITY OF EDINBURGH

The Senatus of the University has resolved to confer the honorary degree of LL.D. upon Dr. Mervyn H. Gordon, F.R.S., consulting bacteriologist to St. Bartholomew's Hospital, and Colonel the Hon. Murray Maclaren, C.M.G., M.D., Lieutenant-Governor of the Province of New Brunswick.

The Paterson travelling scholarship has been awarded to G. Bowman Ludlam, M.B.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary council meeting was held on March 12th, with Sir Cuthbert Wallace in the chair.

Mr. E. K. Martin (University College Hospital) was elected a member of the Court of Examiners.

Mr. F. N. Doubleday (Guy's Hospital) was elected a member of the Board of Examiners in Dental Surgery (Dental Section).

Diplomas

Diplomas in Ophthalmic Medicine and Surgery were granted, jointly with the Royal College of Physicians, to the following candidates:

F. Badrock, P. N. Chaudhuri, J. E. Clark, T. K. Clifford, S. P. Divatia, G. B. Ebbage, W. H. V. D. Ferdinands, F. Heckford, T. J. Howell, H. A. Ibrahim, F. J. Jensen, A. de B. Joyce, J. Mazell, B. F. Moore, S. Nath, T. Nath, G. Pollock, E. P. Tulloh, N. Wren, E. C. Zorab.

A further guarantee of £1,625 from the Prophit Trust Fund was made towards the expenditure of the governing body of the Radium Beam Therapy Research for the year ending December 31st, 1937.

Professor E. W. Hey Groves was elected as representative of the College on the General Medical Council, and on the Interdepartmental Committee of the Ministry of Health on the restoration of the working capacity of persons injured by accidents.

Sir Holburt Waring was appointed a representative of the College at the centenary celebrations of the University of London from June 29th to July 3rd.

Professor G. E. Gask will give a lecture, on February 15th, 1937, on the recently acquired Hunterian MSS. relating to the British campaign in Portugal in 1762–3.

A College reception will be held on Monday, July 6th.

The best thanks of the Council were given to Dr. Mervyn Gordon for his continued interest and generosity in presenting Roman instruments to the Muesum.

A letter was read from the Society of the Medical Sciences of Lisbon expressing sympathy with the College in the loss sustained by the death of King George V.

Medical Notes in Parliament

[From our Parliamentary Correspondent]

Navy and Air Estimates were introduced and discussed in the House of Commons this week.

In the House of Lords on March 17th Lord Balfour introduced the Public Health (London) Bill, which was read a first time.

On March 17th, in the House of Lords, Viscount Gage introduced a Bill to consolidate the enactments relating to national health insurance; another Bill to consolidate enactments relating to widows', orphans', and old age contributory pensions; and a third Bill to consolidate enactments relating to non-contributory pensions. These Bills were read a first time.

In the House of Lords on March 17th the Ministry of Health Provisional Orders Bills for the Bedford Joint Hospital District, the Bury and District Joint Hospital District, and the Mid-Sussex Joint Hospital District passed through committee on recommitment.

On the motion of Earl De La Warr the Milk (Extension of Temporary Provisions) Bill was read the third time, and passed by the House of Lords on March 17th.

On March 11th Sir Francis Fremantle presided over a meeting of the Health and Housing Committee of the Conservative Party, when Mr. Murray N. Phelps spoke on the work of the Council for the Disposition of the Dead. The Council was concerned to secure revision or codification of the laws in relation to burial and cremation. Under the leadership of Lord Horder and with the support of affiliated bodies it was emphasizing the public health significance of this movement. With the rapid growth of great towns the sterilization of land required for cemeteries was regrettable and uneconomic, and crematoria were now available in most of the big centres of population. In the first ten years the number of cremations had increased from 2,800 to nearly 10,000 per annum. Hitherto cremation had made little progress among the working classes, but an insurance scheme with weekly payments, recently launched by the Cremation Society on lines that had proved successful on the Continent, was already enrolling many supporters. Mr. E. H. Keeling was appointed to assist Captain Elliston in the secretarial work of the committee.

The Chancellor of the Exchequer will open the Budget on April 21st.

A Select Committee to consider the Civil List was set up by the House of Commons on March 12th.

During the debate on the Army Estimates on March 12th Mr. J. J. Lawson alluded to the rejection of recruits for physical unfitness, but the subject was not pursued.

On March 16th there were presented to the House of Commons the accounts of the income and expenditure of the General Medical Council and of the Branch Councils for 1935, and of the Dental Board for the United Kingdom for 1935; also the report on the 1935 visit of

inspection to Broadmoor Criminal Lunatic Asylum by the Commissioners of the Board of Control.

The Parliamentary Medical Committee met at the House of Commons on March 16th, and was addressed by Dr. Somerville Hastings, chairman of the Public Health Committee of the L.C.C. Dr. Hastings spoke on the proposed Midwives Bill, and of the claims of the L.C.C. and the London borough councils to administer it. The text of the Bill was to be introduced and printed this week.

Health Conditions in Mills

On March 9th Mr. CREECH JONES asked the Home Secretary if his attention had been drawn to the conditions of work at the Cotopa Mills, Guiseley, and if he was aware of the bad physical effects of such employment. Mr. G. LLOYD replied that it appeared from a report by one of the medical inspectors of factories who had visited these mills that no serious trouble had arisen, but that some of the employees had suffered from sore eyes due to fumes. It would seem that this could be prevented by improved ventilation in the process room, together with more care on the part of some of the men to wear the goggles provided for them, and methods of improving the ventilation were to be discussed with an inspector. A canteen with messroom and washing accommodation was being built. There appeared to be no case on grounds of health for restricting the hours of work or for prohibiting the taking of meals on the premises, but the works would continue to receive special attention.

Erysipelas Deaths

On March 10th Mr. VIANT asked the Minister of Health whether his medical staff had formed any opinion of the cause of the marked increase in the number of deaths certified as being due to erysipelas from 1930 to 1934. Mr. SHAKESPEARE replied that the incidence of this disease, the increase of which was only one manifestation of the increased prevalence of a group of diseases of similar causation which had tended to occur in waves of a few years' duration, was receiving the attention of the medical advisers of the Minister, but no firm conclusions were at present possible as to the reasons for this periodicity.

Sir John Orr's Nutrition Report

On March 16th Mr. BALDWIN informed Mr. Ellis Smith that a report prepared by Sir John Boyd Orr on nutrition was referred by the Minister of Health to the Advisory Committee on Nutrition for examination. Asked whether he would set up a Ministry for Food Supply and organize a national distribution of food, Mr. Baldwin replied in the negative.

Standard of Tuberculin-tested Milk

On March 16th Mr. SHAKESPEARE, replying to Mr. de Rothschild, said the standard of cleanliness which it was proposed to apply to tuberculin-tested milk by means of the methylene-blue test was substantially the same as that applied at present by the plate count. The new test gave more reliable and consistent results. The Minister did not at present see any reason for abandoning it, but it was not proposed to bring it into operation until next year, and he would be prepared to make any adjustments in the method of carrying it out which experience might show to be desirable.

On the same date Mr. DE ROTHSCHILD also asked whether, in view of the health value of pure clean raw milk, and of the high standard of cleanliness of tuberculin-tested milk, the Minister would reconsider the proposal to institute a separate grade of tuberculin-tested pasteurized milk, in order not to restrict the market for the highest grades of pure raw milk by fostering the idea that the safety of even tuberculin-tested milk would be enhanced by pasteurization. Mr. SHAKESPEARE replied that Dr. Elliot was giving consideration to this matter in the preparation of the new Special Designations Order.

Milk and the M.R.C. Report

On March 16th Mr. SHAKESPEARE informed Mr. Johnston that the attention of the Minister of Health had been called to the report of the Medical Research Council for 1934-5, just issued, urging the importance of the consumption of more liquid milk by pre-school children and nursing mothers. The Minister intended to give full consideration to the report in consideration with the Secretary for Scotland and the Minister of Agriculture.

National Health Insurance Administration Costs

On March 17th Mr. SHAKESPEARE informed Mr. Tom Smith that in 1934, the latest year of account available, the cost of administering the national health insurance scheme, including the cost of central administration, represented 21.1 per cent. of the contribution income. In the case of contributory pensions the percentage was 5.4.

Bombing of British Red Cross

On March 16th VISCOUNT CRANBORNE, replying to Mr. Wedgwood, said the Italian Government had communicated a written reply to representations made by His Majesty's Ambassador in Rome about the bombing of a British Red Cross ambulance unit. The Italian Government admitted the bombing, on March 4th, of an encampment furnished with at least one Red Cross sign, but claimed that this bombing was in retaliation for the opening of fire upon the aircraft, both on March 3rd and 4th. It was claimed that the Italian aircraft were fired on yet again on March 5th from the same locality, but the summary did not show that the Italians admitted having bombed the encampment again on that day. The Italian note apparently stated that the coincidence of the locality and of the facts permitted the identification of this alleged incident with that of which the British Government had complained. The Foreign Secretary noticed considerable discrepancies between the account given in the Italian communication and the report previously communicated by the leader of the British Red Cross unit concerned, particularly as regarded the number of lorries and of Red Cross insignia as well as the location of the encampment. The Italian official statement did not apparently specify who was supposed to have fired on the aircraft, but the Italian press of March 12th explained that it was done by at least 1,000 armed men in khaki uniform who emerged from the tents on the approach of the aircraft. Dr. Melly had already denied that there was any firing upon Italian aircraft from the neighbourhood of his camp, but further detailed information was being sought from him. The British Government would pursue this matter with the utmost energy with the Italian Government as soon as the Foreign Secretary had obtained Dr. Melly's further comments.

Conditions in Offices

In the House of Commons on March 13th Mr. CREECH JONES moved the second reading of the Offices Regulation Bill. He said the Bill had been influenced to some extent by the Shops Act, 1934. Since the last debate on office conditions a Shop Act had been passed in which certain offices were included, but the vast majority were outside the regulations altogether. Recommendations for new legislation which were now being considered by local authorities throughout the country as part of the new public health regulations would provide right of entry into offices for the purpose of routine inspection so far as the provinces were concerned. He believed the right of entry was admitted in the case of public health legislation for London. Nevertheless there was practically no systematic or routine inspection of offices to-day, and appalling conditions existed in many. Inspection by local medical officers of health was limited to offices to which their attention had been drawn when nuisances had arisen. In many offices mechanization was going on; there was increased noise and the work created increasing strain of a nervous kind. There was considerable employment underground, where temperature and light had grave effects on clerical workers. Medical statistics evidenced the stress and strain of modern office work. Doctors informed the public

that there was a marked tendency among clerical workers towards tuberculosis and digestive and nervous disorders. The death rate of the commercial class was almost double that of the agricultural class. Nearly a quarter of the people employed in offices died of phthisis and pulmonary diseases, and over half of those who died from consumption were between 20 and 35 years of age. Mr. Jones explained that the Bill sought to secure the standard prescribed by the Ministry of Health of cleanliness, sanitary accommodation, ventilation, lighting, temperature, and washing facilities, and to prevent overcrowding. The promoters of the Bill wished to enforce its provisions through the local sanitary authorities with powers reserved to the Ministry of Health to take action when occasion arose. The Bill authorized the Minister to lay down standards by regulation, but it proposed a standard of 400 cubic feet per person, which was the recognized standard under the Factory Acts.

Mr. GEORGE LATHAM in seconding the Bill gave details of complaints of insufficient lavatory and rest-room accommodation for women employees in banks, employment exchanges, and the Ministry of Labour office at Kew.

Mr. LEVY moved the rejection of the Bill on the grounds that it merely enacted the existing law and would lead to confusion in administration. Colonel SANDEMAN ALLEN seconded the rejection, and after further debate Sir FRANCIS FREMANTLE intervened. He said there was no question that the large firms as a rule made good provision for clerical services, but when use had to be made in overcrowded buildings the last thing to be considered was the sanitary arrangements for the staff. The promoters of the Bill should not rely too much on vital statistics. A considerable proportion of those who entered offices were in one way or another delicate, and if not affected with tubercle were susceptible to it. Those who worked in offices were liable to infection by working in crowded rooms. They caught colds more readily and got the tubercle germ. There was, therefore, all the more reason for improving the conditions. How was the improvement to be done? Over and over again the Minister of Health had said that there must be a test case. The Metropolitan Standing Joint Committee had said that a test case would be brought, but none had been brought, and medical officers of health for the metropolis did not think they had the power to inspect offices, although the Minister had laid down that they possessed this power. It would be greatly to the advantage of administration if the law said definitely that "workplace" did include offices, and that there was power of inspection without the medical officers having to wait until there was reason to suspect a nuisance. The power in the Public Health Act for a medical officer of health to inspect "any premises" where he had reason to suspect a nuisance was quite insufficient for the purpose. Nevertheless it was the wrong way of dealing with the matter to have specific legislation for the purpose. A provision should be incorporated in the Bill which was at present before Parliament for the amendment and consolidation of the public health laws. If the measure before the House was not adopted would the Government put the matter under the inspectors of the Home Office or would the Ministry of Health take it up as being a matter for medical officers of health?

Mr. GEOFFREY LLOYD, replying for the Government, said that between 1921 and 1931 the total number of the employed population increased by 10 per cent., while the number of clerical workers increased by 38 per cent. Figures had been given showing the high rate of tuberculosis among office workers, but there were other indoor workers who unfortunately had an even higher tuberculosis mortality. The Chief Medical Officer of the Ministry of Health said that the sedentary occupations in which clerical workers were found attracted a higher proportion of those already tuberculous than did more strenuous occupation.

Mr. LATHAM intervened to say that many occupations imposed strict medical tests before admitting clerical workers.

Mr. LLOYD replied that this was the case in the Civil Service, where the figures of mortality were entirely different from those given by Mr. Creech Jones. The Government was taking steps to improve the health of office workers. The proposals for increased opportunities of physical education and recreation would be available to young people in offices, and the provisions whereby clerical workers not at present covered by the old age pension scheme would be able to come in on a voluntary basis would be a valuable provision in reducing the anxiety which was one cause of illness. The Public Health Acts did, in fact, deal with the more important of the provisions concerning sanitation, ventilation, overcrowding, and so on. A very important committee called the Local Government and Public Health Consolidation Committee had produced a draft Bill which would cover the whole of these questions and many others. The draft Bill defined a workplace as any place in which persons were employed otherwise than in domestic service, and would apply to offices. It made a clear and definite provision of the powers of entry and inspection which would remove all doubt about the power of local authorities' inspectors to engage in systematic inspection of offices. He had the authority of the Minister of Health to say that this Public Health (Consolidation) Bill would be introduced during the present session.

Dr. W. M. WILLOUGHBY, medical officer of health for the City of London, giving evidence before the Select Committee on Shop Assistants, had said he was convinced that 85 per cent. of the difficulties could be overcome simply by giving powers of entry and inspection. As that Bill was being introduced by the Government he asked the House not to give the present one a second reading.

Mr. RHYS DAVIES asked whether it was not possible to set up a Select Committee to conduct a similar inquiry for offices to that carried through in respect of shops and shop assistants some time ago. He drew the attention of the Home Office to the tendency to introduce large machinery into offices until the conditions of work there approximated to those in factories.

On a division the Bill was defeated by 134 to 93.

Dental Benefit: Fees for Anaesthetics

Mr. SHAKESPEARE informed Dr. Salter, on March 17th, that the responsibility for negotiating a scale of fees for the dental treatment of insured persons entitled to dental benefit rested with the Dental Benefit Council, which was a statutory body representative of approved societies and the dental profession. Under the present scale, which had been included in a schedule to the Dental Benefit Regulations, the fee for the administration of a general anaesthetic ranged from 5s. to £1 1s., in accordance with the number of teeth to be extracted. The Minister of Health was aware that some medical practitioners had expressed the opinion that the fee was inadequate in certain cases, but the Dental Benefit Regulations were not binding on medical practitioners, and did not impose any limitation on the fees chargeable by them. They merely embodied the conditions which in the interests of insured persons as a whole must be complied with before any grant could be made by approved societies towards the cost of dental treatment. One of these conditions was that the dentist was to be responsible for the provision of all necessary treatment (which would include the services of an anaesthetist, if required), and accordingly the Regulations contemplated that, where an insured person desired his own medical attendant to act as anaesthetist, the arrangements should be made through the dentist, and not by the insured person himself acting independently.

Draft Milk (Special Designations) Order

Sir KINGSLEY WOOD, the Minister of Health, having considered representations made to him upon the Draft Milk (Special Designations) Order, 1936, has decided to make some modifications in the Order and to postpone the date of operation till June 1st next. A circular is being issued notifying the local authorities concerned of the postponement of the date of operation, and copies of the Order containing the modifications decided upon will be issued as soon as possible.

Boy of 14 in Adult Mental Hospital.—Sir KINGSLEY WOOD said on March 5th that the transfer of a boy of 14 years from Napsbury Mental Hospital, where the other patients were adults, had been considered, but this transfer was not practicable or desirable, having regard to the boy's mental condition. Mr. MESSER, who raised the case, said he would forward to Sir Kingsley a letter which averred that a boy in similar circumstances had been treated in a discreditable way by other patients.

A Definition of "Light Work."—On March 10th Mr. HARDIE asked the Secretary of State for Scotland whether, in view of the number of cases coming under the Scottish Health Department where men were being told by medical opinion that they were only fit for light work, he could give a definition of what constituted light work. Sir GODFREY COLLINS assumed that Mr. Hardie referred to persons who had been examined by the regional medical officers of the Department of Health on the question of their incapacity for work. When the opinion was expressed that the persons concerned were only fit for light work the phrase "light work" was used in its ordinary sense—that is, as indicating work not involving physical effort of an arduous nature. He was advised that mitral stenosis did not necessarily involve incapacity for all kinds of work.

Milk Allowances at Glasgow Welfare Clinics.—On March 17th Sir GODFREY COLLINS informed Mr. Stephen that he was not aware there was a different standard of malnutrition in the welfare clinics in the East End of Glasgow from that in the West End, nor that necessitous parents were being refused milk allowances for their children in the former area which would be granted if they lived in the latter. In the granting of milk to necessitous parents the Corporation applied a common standard throughout the city of Glasgow. He saw no ground for any action by him on the matter.

Water Supply and Drainage in Scotland.—Mr. HENDERSON STEWART, on March 10th, asked if the Secretary for Scotland was aware of the demand for regional water and drainage schemes in Scotland, and that such schemes were being held up because the cost to local authorities was too great to bear. Sir GODFREY COLLINS replied that in some parts of Scotland increased water supplies or drainage facilities were necessary, and that schemes of a regional nature were being considered by local authorities. He was meeting representatives of the Association of County Councils next week about the matter.

Extension of Medical Services in Bechuanaland.—On March 10th Mr. M. MACDONALD told Sir Edward Grigg that in the Bechuanaland Protectorate a substantial extension of medical services had lately been authorized, including the provision of two travelling dispensaries, the establishment of three new hospitals, and the initiation of a scheme for training native nurses. Part of the cost of the last scheme, and of similar schemes in Basutoland and Swaziland, was being met from a grant of £10,000 which had been made for this purpose by the Transvaal Chamber of Mines. Two of the proposed new hospitals were mission hospitals, towards the cost of which missionary societies were contributing.

Distinguishing Badge for Doctors' Cars.—Mr. HORE-BELISHA stated, on March 11th, that a suggestion of a special badge attached to the cars of registered medical practitioners, or authority for them to use a distinctive horn, had always been considered impracticable in view of the impossibility of preventing abuse. He was not aware that this plan had worked satisfactorily in Canada.

Institutional Accommodation for Mental Defectives.—Sir KINGSLEY WOOD told Mr. Sorensen, on March 12th, that at January 1st, 1935, the mental defectives in England and Wales ascertained by local authorities under the Mental Deficiency Acts were 110,530, of whom 37,987 were in institutions. On that date 2,802 patients awaited removal to institutions, but, in the meantime, were receiving statutory supervision at the hands of the local authorities. Figures showing the position at the end of 1935 were not yet complete. Sir Kingsley added that for the most part local authorities endeavoured to carry out their duties in this matter.

Standard of Compensation for Silicosis.—In reply to Mr. William Leach, on March 12th, who suggested that compensation for victims of silicosis should be based on full standard wages without deduction in view of the incurable nature of the disease, Sir JOHN SIMON said there seemed no justification for higher scales of compensation for silicosis than for permanent incapacity due to other disease or to accidents. Answering Mr. Tinker on the same date, Sir John said the Committee which was inquiring, among many other things, into compensation for nystagmus and into medical procedure under the Workmen's Compensation Act still had to take a good deal of evidence. He could not forecast when it would be able to report.

Verminous Materials from Demolished Houses.—Mr. B. V. KIRBY, on March 12th, asked whether the Minister of Health would introduce legislation whereby vermin-infested old bricks taken from demolished dwelling-houses would be prohibited from use in the construction of new dwelling-houses. Sir KINGSLEY WOOD replied that in view of the power conferred on local authorities by Section 82 of the Housing Act, 1935, to cleanse from vermin before demolition any house to which a demolition order or clearance order applied, he did not consider further legislation necessary.

Infectious Diseases Outbreak in County Durham.—On March 16th Mr. DAVID ADAMS asked the Minister of Health if he was aware of the high incidence of infectious disease in the Stanley, County Durham, area, and that this was declared by members of the local authority to be due to the low nutritional standards of the area. Mr. SHAKESPEARE said that the Minister was aware of this outbreak. The situation had been under close investigation for some time past, and he was now awaiting a report by the county medical officer of health.

Surveys of Overcrowding.—Mr. SHAKESPEARE, replying to Mr. Maxton on March 16th, said that local authorities were required to submit the results of their surveys of overcrowding in England and Wales by June 1st. The Minister of Health had received reports from fifty-nine authorities out of a total of 1,559. These reports covered 202,801 dwellings, of which 6,099 were overcrowded.

Maternity Services in Scotland.—On March 10th Sir GODFREY COLLINS informed Mr. Pethick-Lawrence that reports on surveys of maternity services had been received from thirteen of the fifty-five local authorities in Scotland. The nature of these reports varied according to the circumstances of each area, but in general they showed a recognition of the need of further development of services. He had in contemplation additional measures for dealing with the problem of maternal morbidity and mortality in Scotland.

Typhoid Fever in Derbyshire.—Sir KINGSLEY WOOD, on March 17th, informed Mr. Holland that the outbreak of typhoid fever in the village of Langwith, Derbyshire, was reported to be due to a previous water supply which was pronounced by the district medical officer to be polluted. At a recent date one person died from the alleged effects of typhoid fever. Liability to pay compensation could be determined only by the courts.

Influenza at a Chatham Barracks.—On March 17th Mr. DUFF COOPER, replying to Captain Plugge, said that during the last month there had been twenty-five cases of influenza, five of pneumonia, three of bronchitis, and 198 of common cold at Brompton Barracks, Chatham. Four deaths had occurred, three being the result of bronchopneumonia, influenzal in origin, and the other of lobar pneumonia. Every possible precaution had been taken to prevent the spreading of the outbreak, and reports showed that since the beginning of this month there had been a steady reduction in the number of admissions to hospital and of barrack treatment.

Health of Recruits.—In the House of Lords, on March 17th, a debate took place on a motion by Viscount Swinton approving the defence proposals of the Government as outlined in the White Paper. The EARL OF CAVAN said that the only disquieting thing in the White Paper was the shortage of picked men. Roughly 50 per cent. of the applicants were rejected, and that was a national reproach. It could be remedied, not by lowering the standard, but by paying much more attention to the physical condition of our young men. What was wanted was more food and more open-air games If measures were taken now seriously to improve the physical welfare of the youth of this country our recruiting problems would shortly be solved. The debate was adjourned until March 19th.

Notes in Brief

In Yorkshire coal mines during 1935, 137 fatal accidents resulted in 169 deaths, and 406 serious non-fatal accidents in injuries to 441 persons.

The sale at garages and by wireless dealers of sulphuric acid in accumulators is exempt from the provisions of the Pharmacy and Poisons Act.

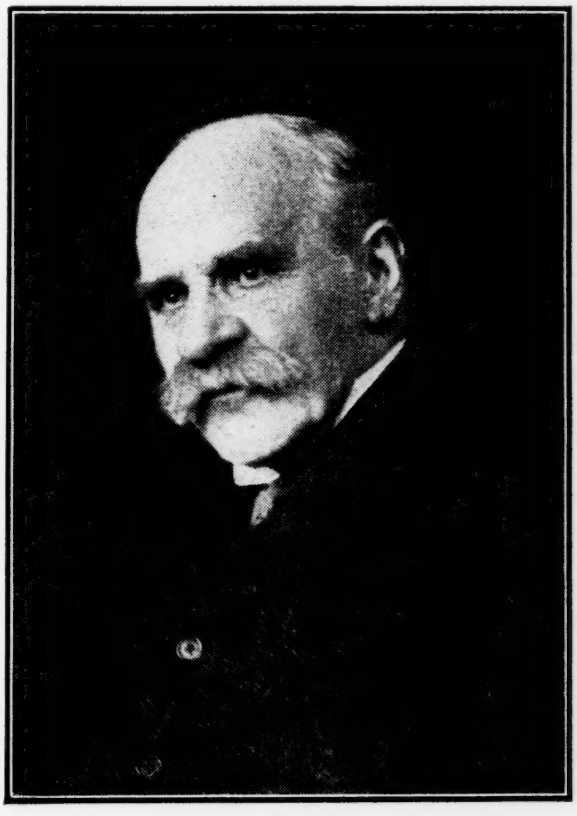
Sir Kingsley Wood states that the number of deaths attributable to the use of chloroform as an anaesthetic is not available.

Obituary

J. S. HALDANE, C.H., M.D., F.R.S.
Honorary Professor, University of Birmingham

By the death of Professor Haldane, which took place at his home in Oxford at midnight, March 14th–15th, medicine, no less than physiology, has lost a man of genius and one of the most outstanding personalities of the time.

John Scott Haldane, son of Robert Haldane of Cloan, Auchterarder, Perthshire, and Mary, daughter of Richard Burdon Sanderson, was born in Edinburgh on May 2nd, 1860. He was brother to the late Lord Haldane, Sir W. S. Haldane, W.S., and Miss Elizabeth Haldane, C.H. He was educated at Edinburgh Academy, Edinburgh University, and the University of Jena. From the beginning of his scientific work he was specially interested in the physiology of respiration, and having graduated in medicine at Edinburgh in 1884 he became demonstrator at University College, Dundee, under Professor Carnelley, with whom he carried out a thorough investigation of impurities of the air. Shortly after the publication of this work in 1887 he became demonstrator in physiological chemistry at Oxford under his uncle, Sir John Burdon Sanderson, and remained at Oxford for the rest of his life. The very important scientific work he did at Oxford was concerned with problems of two different, but closely related, types—industrial hygiene and pure physiology. He soon took up the study of impurities in the air of mines and their effects on men. In is he made clear for the first time the true physiological action of carbon monoxide, devised a most valuable test for small but dangerous amounts of it, and laid the foundation of an association with the mining industry which lasted throughout his life. The importance of this work received recognition when he was made director of the Doncaster coal-owners' research laboratory in 1912 and was elected president of the Institute of Mining Engineers in 1924. He was called upon by the Home Office in 1896 to investigate the cause of death in three colliery explosions. His report was translated into several languages, and was the foundation of the measures which are now generally adopted in dealing with the dangers consequent on explosions and fires in mines.



J. S. Haldane

From that time on Haldane continued to do most valuable work in connexion with the hygiene of mining and industry in general. He investigated the anaemia of Cornish miners and the incidence of ankylostomiasis, and also became keenly interested in miners' phthisis. In 1905 he carried out an important investigation on regulation of body temperature in hot surroundings, and demonstrated the importance of the wet-bulb temperature as a limiting factor to man's power of adjustment to such conditions. He served on a number of Departmental Committees which inquired into these matters and into the ventilation of the Metropolitan Railway, factories, and workshops. He served on the Royal Commissions of 1906 and 1911 on coal mines and metalliferous mines, and was made a member of the Safety in Mines Research Board. In 1921 the Doncaster coal-owners' research laboratory was transferred to Birmingham University, and Haldane was soon made an honorary professor in that university. There he directed a large number of researches into such problems as the ventilation of mines, the causes of spontaneous heating of coal and underground fires, mine rescue apparatus, the effects of high temperatures on miners and the physiology of sweat production, the effects of stone dust and silicosis, and the causes of miners' nystagmus. He was indefatigable in his efforts to reduce the risks to health to which miners are exposed, and he spared neither time nor trouble where the miner's welfare was concerned.

In 1905 he began for the Admiralty an investigation of the causes of the difficulties and dangers encountered by divers. He first showed that the limitation of the diver's capacity to do muscular work under water was due to the high pressure of CO_2 present in the helmet, owing to the inadequacy of the air pumps then in use. He then turned to the more serious problem of caisson disease, or divers' paralysis. He noticed that symptoms never occurred unless the man who had been subjected to compressed air was decompressed rapidly to normal atmospheric pressure from a pressure which was at least one atmosphere in excess of the normal. It had been recognized by Paul Bert that the cause of caisson disease was simple—namely, liberation of bubbles of nitrogen in the body during decompression. Haldane set to work to devise a method of decompression which should be safe and also economical of time. In an extensive experimental investigation, which he carried out with Dr. Boycott and Lieutenant Damant, R.N., he proved that the method of very slow decompression previously enjoined was in some respects actually harmful, and that it was far safer, as well as quicker, to start decompression by halving the absolute pressure. On this basis he worked out the system of "stage decompression" which is now universally used and which has made it possible to carry out successfully salvage operations at great depths. He worked out tables giving the times during which a diver might stay at different depths and the times for each stage of the ascent. Returning to this problem in 1935 he extended the decompression tables for still greater depths. He also gave the Admiralty valuable help with regard to the ventilation of battleships and the purification of the air in submarines.

Haldane did important work for the Army, and served as a member of a committee appointed to inquire into the physiological needs of the soldier as regards food, clothing, and training. The upshot was a radical change in the scale of rations for active service, which un-

doubtedly had an important effect in reducing sickness among the troops during the war. When the Germans began to use chlorine as a poison gas Haldane was called upon to advise, and at once went out to the front. There he quickly verified the gas used and the nature of its effects. He returned to England and, recognizing the need for the immediate provision of protection for the troops, did all he could to speed up the production of an effective emergency respirator. He realized clearly that only respirators of the box type could afford satisfactory protection, and that it must necessarily take some time to design and supply them. Such respirators were, of course, adopted later; but Haldane, though his wide knowledge of respiration and of the effects of toxic gases would have been invaluable, was not invited to join the committee which was appointed to deal with the whole question of poison gas warfare. Nevertheless he did valuable work on the pathology and treatment of gas poisoning, and drew attention to the importance in many cases of oxygen administration, for which he designed an efficient and portable apparatus which has also proved its worth in civil medical practice. He was one of the gas referees under the Board of Trade for many years, and took a keen interest in their work.

Haldane did not, however, confine himself to problems in applied physiology, but did an immense amount of work on general problems of physiology, especially respiration. In his earlier work in this field he devised and introduced many new methods for investigating the respiratory functions, including respiratory exchange, the determination of the amount of haemoglobin in the blood, the volume of blood in the body, and the quantity and tension of the blood gases. He also devised an apparatus for the analysis of the gases, normal and abnormal, present in the air, which revolutionized the technique of air analysis. His most fundamental work on respiration was published in 1905 in a paper in the *Journal of Physiology*, in which he showed that the regulation of the breathing is normally determined, not by variations in oxygen pressure, but by the pressure of CO_2 in the arterial blood reaching the respiratory centre, and that this centre is responsive to exquisitely small variations in CO_2 pressure, which therefore, by their effect on the ventilation of the lungs, ultimately determine the O_2 supply to the tissues. Haldane thus for the first time showed the rational explanation of the automatic changes in respiration which are associated with changes in muscular activity, and further laid the foundation for methods of resuscitation from failure of the respiration which are of the utmost clinical importance. This paper, too, stands as a landmark in the development of Haldane's demonstration of the fact that the body is a physiological whole and of the astounding delicacy of the chemical co-ordination of the functional activities of the various organs and tissues which together form the living individual. He soon published further papers on the regulation of the respiration under varying conditions such as, in particular, oxygen deficiency. In 1911 he led the well-known expedition to Pike's Peak, Colorado, to study the effects of low barometric pressure and the process of acclimatization to high altitudes. Later he worked on the conditions governing the absorption of carbon monoxide by the blood. He also studied the regulation of the CO_2 content and pressure of the blood, and devised a method for determining the venous CO_2, with the help of which he determined the output of blood by the heart. He also studied the nervous control of the breathing and the part played by the vagus nerves in its regulation. In the last few years of his life he devoted considerable time to investigation of means by which aviators and balloonists might safely and conveniently reach very high altitudes. He also did important work on the physiology of the kidneys and the regulation of the water content of the body, and published a paper on colour vision and contrast.

In 1912 he published *Methods of Air Analysis*, in which he described fully the apparatus which he designed and which has greatly simplified the accurate analysis of gases. In conjunction with Dr. Ivon Graham, deputy director of the Coal Owners' Research Laboratory, he published the fourth edition in 1935. The Silliman Lectures, which Haldane had been invited to deliver at Yale University in 1915, had to be postponed till 1916, owing to the war. He published a short summary in 1917 under the title of "Organism and Environment as Illustrated by the Physiology of the Breathing," but the lectures could not be published in full till 1922. They then appeared in a volume entitled *Respiration*. In this Haldane gave a full account of his work on the pure physiology of respiration, and discussed many of his investigations in applied physiology. A new edition of this book, in rewriting which one of his old pupils (Dr. J. G. Priestley) had the privilege of helping him, was published in 1935.

From his earliest days Haldane was deeply interested in philosophy, and many of his writings were devoted to the enunciation of philosophical arguments, on which he based the whole of his scientific work. Even as a medical student he found that the teaching of physiology was unsatisfactory, in that it was not founded on wide philosophical conceptions, and his dissatisfaction caused him to think deeply about the fundamental principles underlying physiological phenomena, only insight into which, he believed, would make these phenomena intelligible. His views on the philosophical basis of physiology were gradually developed in a series of addresses and books, the earliest of which was a paper contributed by himself and his brother (Lord Haldane) in 1883 to "Essays in Philosophical Criticism." This essay was followed by "Mechanism, Life, and Personality," 1913; "The New Physiology," 1919; "The Sciences and Philosophy," 1928 (Gifford Lectures); "The Philosophical Basis of Biology," 1931 (Donellan Lectures); "Materialism," 1932; and "The Philosophy of a Biologist," 1935. The last of many communications to the *British Medical Journal* was an address on "Vision of Brightness and Colour," published on December 23rd, 1933.

Some have found it difficult to follow Haldane's views as to the meaning of life and the true significance of biology, but his point of view was not really obscure. He saw clearly that physiological phenomena were meaningless when investigated in isolation, and that they are so interrelated that they can only be understood when the organism is studied as a whole. Hence it followed that most of his work was done on man, and that he was the most brilliant investigator of human physiology. Haldane's discovery of the amazing delicacy with which the various functions of the body are controlled and correlated, which has been mentioned above, led him to the conclusion that the phenomena of life "express the maintenance of a co-ordinated whole, which includes within itself relations to environment as well as the mutual relationships of details of internal structure and activity." To quote his own words again:

> "Organism and environment cannot be separated in considering life. But we seem to be able to reach a satisfactory interpretation of the physics and chemistry of the external, and even of the internal environment, when these states are looked at apart from their relations to organic activity. . . . But when we reach the living tissues we can ignore the organic regulation no longer: for we can see nothing clearly except an evident manifestation of the most intimate organic regulation. The physical and chemical picture is entirely obliterated by the picture of the organism."

Haldane found the idea of "vital force" as unsatisfactory as the mechanistic theory of life which succeeded it. He thought that no applications of physics and

chemistry could ever fully explain the phenomena of biology. He regarded biology as a more comprehensive science than physics and chemistry, though including them, and having different axioms and interpretations, just as he regarded psychology as a science which cannot be fully interpreted in terms of biology.

Haldane was generally a clear and concise writer, but as a speaker he had a somewhat awkward delivery. Despite this his deep knowledge of his subjects and his remarkable faculty of separating the essential from the irrelevant made it surprisingly easy for his listeners to benefit from his lectures and obtain a real grasp of the subject under discussion. As a research worker he had a really remarkable capacity for concentrating on essentials and obtaining accurate results by simple means. Those who had the inestimable privilege of working with him acquired an admiration for his skill and clear reasoning which was only equalled by the affection inspired by his extraordinary kindness. As a scientific man and as a friend he has had few equals.

Haldane was elected a Fellow of the Royal Society in 1897, a Fellow of New College in 1901, and a Reader in Physiology at Oxford in 1907. In 1916 he was awarded a Royal Medal for his researches in respiration, and in 1934 the Copley Medal of the Royal Society in recognition of his discoveries in human physiology and of their application to medicine, diving, mining, and engineering. He was also awarded gold medals by the Institution of Mining Engineers, the Royal Society of Medicine, the Royal College of Physicians of London (Baly Medal), and the North of England Institute of Mining Engineers. He received many honorary degrees, including LL.D. of Edinburgh and Birmingham Universities, D.Sc. of Oxford and Leeds, Sc.D. of Cambridge and Dublin, and D.Sc. (Engineering) of Witwatersrand. In 1928 he was created a Companion of Honour, a distinction which he valued very greatly, in recognition of his outstanding contributions to the fight against industrial disease.

In 1891 Haldane married Louisa Kathleen, daughter of Mr. Coutts Trotter, who survives him, and he leaves one son, J. B. S. Haldane, F.R.S., professor of genetics in the University of London, and one daughter, Mrs. Naomi Mitchison, who is well known as a novelist.

At the Oxford meeting of the British Medical Association in 1904 he was president of the Section of State Medicine, and he was vice-president of the Section of Physiology at the London meeting in 1910. For two years after the war he served on the Science Committee and on the Medical Research and Laboratory Workers' Subcommittee.

[The photograph reproduced is by Russell, London.]

JOHN W. DOWDEN, LL.D., M.B., F.R.C.S.ED.

Consulting Surgeon, Royal Infirmary of Edinburgh

The death took place, on March 8th, in Edinburgh, after a short illness, of Mr. John W. Dowden, who for many years had been well known as one of the leading surgeons in the Edinburgh medical school.

John Wheeler Dowden was born in Sligo in 1866. He received his early education at Merchiston Castle School in Edinburgh, where his father was a cleric in the Scottish Episcopal Church and later Bishop of Edinburgh. Commencing the study of medicine at the University of Edinburgh in 1886, Mr. Dowden graduated M.B., C.M. there in 1890. For some three years thereafter he held resident appointments in the Royal Infirmary as house-physician with Dr. David Brackenridge, house-surgeon with Professor Annandale, and house-surgeon with Mr. Joseph Bell in the Royal Edinburgh Hospital for Sick Children. For a year he acted as an assistant in general practice in Edinburgh, but in 1894, after passing the examination for the Fellowship of the Royal College of Surgeons of Edinburgh, he decided to specialize in surgery, and from 1895 to 1900 he acted as surgical tutor and private assistant to Professor Annandale. In 1901 he became assistant surgeon to the Royal Infirmary, and in 1912 was promoted surgeon in charge of wards. In 1924 he resigned the appointment at the Royal Infirmary on being elected surgeon to Chalmers' Hospital, Edinburgh, a post which he held for five years.

During the war Mr. Dowden acted as a captain in the R.A.M.C. on the staff of the Second Scottish General Hospital at Craigleith, and later on that of the Edinburgh War Hospital at Bangour, where his work consisted chiefly of orthopaedic surgery. He was elected President of the Royal College of Surgeons of Edinburgh in 1931, and represented that College for five years on the Board of Management of the Royal Infirmary. In 1931, on the occasion of the 250th anniversary of the Royal College of Physicians of Edinburgh, he was made an honorary Fellow of the latter body, and in 1933, when the University of Edinburgh celebrated its 350th anniversary, he received the honorary degree of LL.D. When the British Medical Association held its Annual Meeting in Edinburgh in 1927 he was vice-president of the Section of Surgery.

Mr. Dowden was a surgeon of great skill and wide reputation. He was an early and enthusiastic exponent of the value of early active movement in treating fractures, and he made several contributions to current surgical literature, such as "Treatment of Perforating Ulcer at the Pylorus by Excision," in the *Edinburgh Medical Journal* (1909), and "The Principle of Active Movement in Treatment of Injury and Disease," in the *International Journal of Medicine and Surgery* (1928). As a teacher and lecturer on clinical surgery he was highly popular with students, having a great belief in the value of giving instruction on the commoner surgical ailments met in general practice. He was fond of inculcating into his hearers the importance of cultivating their powers of observation and devoting themselves to facts to the exclusion of theories, while his clear powers of exposition and a certain native Irish humour made his demonstrations highly acceptable.

Mr. Dowden had a very special affection for his old school, of which he was for many years a governor, and subsequently, up to the time of his death, chairman of the Governing Board. In this capacity he took an active part in the scheme which transferred the school from Merchiston Castle to its present site at Colinton, and he was most active in appealing to old Merchistonians all over the world for subscriptions to effect this object. In his earlier years he took a prominent part in athletics. He had been a member of both the cricket and the football teams of his school, and for many years played quarter-back for the Merchistonian and Edinburgh Wanderers Clubs. He was also an enthusiastic tennis player, in later life took up curling, and was a keen fisherman during his holidays. As a speaker at medical gatherings his power of racy and humorous anecdote was greatly valued by his colleagues, and his facility as a teller of stories caused him to be in great demand at such meetings. Mr. Dowden's artistic tastes were also of a high order, and his discrimination in regard to old prints and old furniture was much valued by collectors of such objects of art. He is survived by his widow.

The funeral took place at the Edinburgh Crematorium on March 11th, and was attended by a large gathering of friends and of representatives from the Royal College of Surgeons of Edinburgh and from the governors of Merchiston Castle School.

A CORRESPONDENT writes:

Dowden's choice of a career was completely justified by the high position he attained as a surgeon and teacher,

maintaining in both respects the high standard of the Edinburgh School of Surgery. As a lecturer on surgery he attracted large classes; as a clinical teacher in the wards of the hospital he encouraged his students to think for themselves, to take nothing for granted, to cultivate their powers of observation, and to concern themselves with facts, not theories. He believed in the value of instructing them in the commoner surgical ailments met with in everyday practice, and nothing was too simple to serve as a text for a clinical lecture. He made few contributions to surgical literature, but his chief work, published in 1924, in which he advocated early active movement in the treatment of fractures of the upper limbs, records a long series of cases characterized by the excellence of the results thus obtained.

He was a true sportsman: through all the active years of his life he maintained his interest in sport, and was a thorough believer in the dictum *mens sana in corpore sano*. In his school days he was a member of the XI and XV; he played at "quarter-back" in the Rugby game, not only at school, but in the Old Merchistonian and Edinburgh Wanderers Clubs. Equally enthusiastic as a tennis player, he was for many years a well-known figure at the Dyvours Club at Raeburn Place, and he later found in curling an outlet for his energies, playing the game with the same keen relish and enjoyment which he had previously shown for cricket and football. As a disciple of Izaak Walton, angling in season was a favourite recreation, whether on the upper reaches of the Water of Leith, on the Tay, or in Shetland, during his autumn holidays. To those who had the privilege of knowing him intimately his personality, his upright character, and his vitality made a strong appeal. In him they possessed a loyal and genuine friend, who had many attractive qualities; a kindly and sympathetic nature; a whole-hearted infectious enthusiasm for work and recreation; a genial humour, free from any suggestion of cynicism or satire, illuminating his Irish faculty and facility as a storyteller—a gift which made his company so enjoyable to his friends. For many years, as secretary of the Harveian Society of Edinburgh, his racy and humorous "minutes" were a source of delight to the members of the society at their annual dinner. In his early days he was a dramatic performer of no mean merit, and there are those who still talk with bated breath of his achievements at the kitchen concerts of the Royal Infirmary.

Although he held decided views on many controversial subjects and expressed his opinions freely, Mr. Dowden was always considerate towards the views of others. He had a fine discriminating taste in etchings and old prints, and a penchant for old furniture, and in the pursuit of these artistic tastes he was a familiar figure in the auction rooms of the city, cultivating his flair when interesting collections were on view. He is survived by his wife, a daughter of the late Surgeon-General H. R. Oswald, I.M.S., and by four sisters, one of whom is married to Mr. H. R. Pyatt, who until recently was a house-master at Fettes College.

ROBERT RENDLE LEATHEM, M.B., B.CH.

Consulting Physician, Belfast Hospital for Sick Children

Dr. R. R. Leathem died on December 20th, 1935, at his home, Mountnorris, Newcastle, County Down. Educated at the Royal Academical Institution, Belfast, he entered the Queen's College as Pakenham Scholar. He graduated in arts with first-class honours in 1889, won the Dunville Studentship two years later, and qualified M.B., B.Ch., B.A.O., with honours, in 1893. After holding various resident hospital appointments he commenced practice in Belfast. Possessing a logical and analytical mind, Dr. Leathem studied each patient with intense absorption, from both a physical and a psychological standpoint. The words of Trousseau were true for Leathem: "Il n'y a pas de maladies; il n'y a que des malades." He gave to his patients of his very best, no matter what the giving cost him in nervous energy and physical strength. In children he took a special interest, and quickly won their confidence and affection. He loved his work as physician to the Belfast Hospital for Sick Children. His lectures attracted large numbers of students to the hospital, for his clinical teaching was always arresting, lucid, and practical, illustrated from his rich clinical experience and his wide knowledge of the literature of paediatrics. Thirty years of concentrated work told on a frame never robust, and taking heed to certain subjective cardiac warnings he retired from practice some years ago.

All through Leathem's life beauty—in nature, in art, in literature, in architecture—had struck a responsive chord in his nature. On his retirement, still in his prime, he was fortunate in being able to surround himself with the beautiful things he loved. His home, which lay on the foothills of the Mourne Mountains, was surrounded by a garden which at every season of the year was a dream of loveliness, and the house was filled with real gems of furniture and wonderful pictures, for he was a connoisseur and a keen and gifted collector. Nothing gave him greater pleasure than to share his treasures with his friends, and his home and garden afforded others less fortunately situated many happy hours.

His interest in the Belfast Children's Hospital never waned. Ceaselessly he urged the board of management to leave their cramped quarters in the heart of the city and to build a modern hospital in the open space facing the Antrim Hills available close by the Royal Victoria Hospital. Having carried this point, he threw himself with his usual enthusiasm and thoroughness into the consideration of plans, and the new Children's Hospital embodies many of his ideas. To-day it stands a permanent memorial to his courage, faith, and generosity.

W. T.

SIR JAMES MAGILL, K.C.B., M.D.

Colonel, late R.A.M.C.

Colonel Sir James Magill, K.C.B., late R.A.M.C. and Coldstream Guards, died in London on March 9th, aged 85. He was born at Cork on September 6th, 1850, the son of the Rev. William Magill, D.D., and educated at Queen's College, Cork, and at University College, London. He graduated M.D., with honours, and M.Ch. in the Royal University of Ireland in 1871, and subsequently M.A. in 1881, and also took the M.R.C.S. in 1872. Entering the Army as assistant surgeon on March 30th, 1872, he served in the 33rd Foot, now the Duke of Wellington's Regiment, but soon resigned, in July, 1875. He was reappointed to the A.M.D. as surgeon on May 3rd, 1876, and posted to the Coldstream Guards, and served in that regiment for nearly thirty years, becoming surgeon lieutenant-colonel after twenty years' service. In December, 1904, he was transferred to the R.A.M.C., and promoted to full colonel, retiring in December, 1907. From 1905 to 1907 he was principal medical officer in Egypt, and in 1910 was appointed organizing secretary of the British Red Cross Society. He served in the Sudan expedition, up the Nile, in 1894–5, with the Guards camel regiment, including the action of Abu Klea, where he was severely wounded, was mentioned in dispatches in the *London Gazette* of August 25th, 1885, and received the medal with two clasps and the Khedive's bronze star. He also served in the South African War, from 1899 to 1902, as P.M.O. of a division, when he took part in the advance on Kimberley, including

the actions at Enslin, Modder River, Belmont, and Magersfontein, operations in the Orange Free State, including actions at Poplar Grove, Dreifontein, Vet River, and Zand River; operations in the Transvaal, including actions at Johannesburg, Pretoria, Diamond Hill, and Belfast; and operations in Cape Colony. He was mentioned in dispatches in the *London Gazette* of September 10th, 1901, and received the Queen's medal with six clasps and the King's medal with two clasps, and the C.B. In 1917 he received the K.C.B.

A friend writes:

On returning home in 1897 after completing a tour in India, it was my good fortune to be posted as medical officer to the Scots Guards. On joining the central hospital of the brigade in Rochester Row it was my first duty to seek an interview with the brigade surgeon, and it was then and there that I first met Magill. It was soon manifest that amongst the medical colleagues assembled daily in hospital there was an atmosphere of regard and respect wherever Magill was. Though quiet in demeanour and a man of few words, these were frequently enlivened with a keen wit and dry humour, which never held any malicious meaning or subtle intent. Magill's life was one of meticulous routine and of seldom-varying regularity; this was part and parcel of his nature. His methods included deep reading and study of his professional cases, with solicitude for the benefit of the soldier. Magill's mind was a storehouse of knowledge combined with worldly wisdom, both kept in the background and only proffered at the right moment, to advantage always. He had a very ready sympathy for the sick and needy, unostentatiously contributed. The writer desires to relate one of the many acts of kindness of Magill's. He received a slight wound at the Modder River fight; Magill went straight to the military post office and wired to his wife: "The wound is slight and all's well."

After retirement Magill was appointed the organizing secretary to the British Red Cross Society, and occupied that position during the great war of 1914–18. The stupendous work that organization undertook and accomplished is known to Sir Arthur Stanley and his executive committee, and is recorded in the report of those years. The part that Magill played in bringing its component apportionments to a complete, reliable, and working entity will never be known to the public, but it has served its purpose to humanity. There are many friends who have lasting and happy memories of Magill's thoughts of them covering the lapse of years, and many an old soldier who will mourn the passing of one of the best beloved of regimental and administrative medical officers.

The death of Dr. FRANK EDWARD GIBBENS at his residence at Barking, Essex, on March 1st, will be received by his many friends with deep regret. Dr. A. M. Barford (Chichester) writes: Gibbens entered St. Bartholomew's Hospital with myself in October, 1883; he had a great personality, and was certainly the most popular student of his year with all. It mattered not to him in which section they moved; he was always jovial, amusing, and extremely courteous. Gibbens was no ordinary student, as was shown by his obtaining in 1887 the Kirkes scholarship and gold medal in medicine, so much coveted by all students; this distinction was a very popular one even with those who had had the advantage of a previous academic career. In this connexion there was a peculiar incident in the course of the examination. Gibbens had been much interested in tabes dorsalis; he had studied very closely every authority at home and abroad upon it, and had all the knowledge at his fingertips. As luck would have it, one of the cases on which he was called upon to report was one of tabes. The examiners were, I believe, Dr. Andrew, Dr. Gee, and Sir Dyce Duckworth, who were reported to have said that Gibbens's report was a revelation to them. Dr. Gibbens practised in Barking ever since he qualified M.R.C.S., L.R.C.P., in 1887, and by his personal charm and skill built up an extensive practice. In his early days he was medical officer of health for Barking U.D.C., but he preferred private practice to accepting the offer of a whole-time appointment. He was also a keen lecturer on ambulance work for many years in the district.

Dr. JAMES RUTHERFORD, F.R.F.P.S., of Harrogate, who died on March 10th, aged 77, was born in the village of Kirkmichael, Dumfriesshire, where his father was a country doctor. In early life he trained to be a chemist and druggist, but later studied medicine in Edinburgh and Glasgow, receiving his diploma rather late in life, when he was 30 years of age. He first established himself in the busy industrial suburb of Springburn, Glasgow, where he built up a large practice in a few years; but after an attack of pneumonia he was advised by Dr. David C. McVail (later Sir David) to go to Harrogate for his health. Before doing so he visited the Continental spas. In Harrogate, in a very few years, he acquired an extensive balneological practice, which he carried on for over thirty years, seeing patients up to January of this year, when he had an attack of influenza, which was followed by gradually increasing disability of his heart. For many years Dr. Rutherford was a member of the Harrogate Town Council, attaining to the position of deputy mayor, but the increasing claims of his practice compelled him to withdraw from municipal life. He was in his spare time an enthusiastic curler, and he often took short sea voyages in the spring for his health, his last trip being to Fernando Po. In Glasgow he was an Elder of the Barony Church, under the care of Dr. Marshall Lang, the father of the present Archbishop. A few years ago Dr. Rutherford had the great honour of being made an Honorary Fellow of the Faculty of Physicians and Surgeons, Glasgow. He is survived by his wife and two sons and two daughters. Both sons and one daughter are members of the medical profession, practising in Harrogate. The outstanding qualities of Rutherford were his business ability, his sound judgement, and his strong Christian faith.

Medico-Legal

DAMAGES FOR INJURED SCIATIC NERVE

The Judicial Committee of the Privy Council considered on February 14th an appeal by Dr. A. D. Caldeira against a judgement of the Supreme Court of Trinidad and Tobago.

Mr. F. A. Gray, a sales manager, brought an action in the Supreme Court claiming damages from Dr. Caldeira for negligence. He stated that the doctor, in giving him an intramuscular injection of quinine in the right buttock for malaria, had injured the sciatic nerve and permanently lamed him, and that in doing so the doctor had failed to exercise, and that he did not possess, the necessary skill or knowledge. The case was heard by a judge (Mr. Justice Manning) sitting without a jury. Mr. Gray said in evidence that he had suffered from recurring attacks of malaria. He had been addicted to what he described as spasmodic "sprees," but did not state the quantity or quality of the alcohol which he had consumed. On March 3rd, 1930, Dr. Caldeira, whom he had consulted, gave him a first injection of quinine in his right buttock. The patient felt a tingling sensation and immediately he left the operating table found that he had foot-drop, and had to cling to the doctor for support. The doctor called medical witnesses to support the defence that Mr. Gray's foot-drop was due to latent alcoholic neuritis, which was precipitated by the shock of the injection which was made in the safe area of the buttock. He said in evidence that he did not remember Mr. Gray developing foot-drop in his office and holding on to him for support, and that he did not look at Mr. Gray's foot there; also that he diagnosed latent alcoholic neuritis at an early stage of the case and advised the patient to stop drinking. Of his three medical witnesses one had never seen the patient at all and the others only saw him for the first time a week before the trial. None of them had had experience of latent alcoholic neuritis precipitated by shock. They admitted that, even if their theory

was correct, the case was exceptional, and they did not cite a single authentic case which in the opinion of the trial judge lent full support to this defence. There was no evidence that the patient was in fact suffering from latent alcoholic neuritis.

Mr. Gray, on the other hand, claimed that his foot-drop was caused by the action of the quinine on his sciatic nerve, either because the needle pierced the nerve or the quinine was injected close to it. His medical witnesses were satisfied that the injection was given outside the safe area and that the quinine injured the nerve, and that latent alcoholic neuritis did not and could not account for the foot-drop. Mr. Gray, in evidence, said that the doctor, in conversation with himself and his wife, did not mention alcohol or advise him to stop drinking, and that he did not in any way alter his habits with regard to alcohol after his disability. Counsel for Dr. Caldeira did not question the wife on this matter.

The trial judge formed very definite opinions on the respective trustworthiness of the witnesses. He disbelieved the doctor's evidence that he injected the quinine into the safe area, that he diagnosed alcoholic neuritis at an early stage, and that he communicated that diagnosis to the patient. Without mincing his words, he affirmed that the doctor deliberately told falsehoods in the witness-box. He found, however, that the doctor had the necessary skill and knowledge to give intramuscular injections into the buttock with safety and had considerable experience of giving them. He believed Mr. Gray and his medical witnesses and accepted their reasons for their opinion; and therefore awarded Mr. Gray damages and costs.

Judgement of the Judicial Committee

The Board—as the Judicial Committee of the Privy Council is called—had therefore to consider a pure question of fact and credibility. In reviewing findings of fact by a trial judge sitting without a jury they were bound by well-established law, of which the principles were recently illustrated in Powell *v.* Streatham Manor Nursing Home.* These are that the trial judge is normally in a better position to judge of the credibility of witnesses than is the appellate tribunal, and they will generally defer to his conclusions. In order to reverse him, they must not merely doubt whether his decision is right, but be convinced that it is wrong. The Board considered, on the doctor's behalf, that it was no doubt antecedently improbable that he should have committed the cardinal and elementary blunder alleged against him. On the other hand, they knew that familiarity bred contempt, and there were many cases on record where experienced signalmen and engine-drivers neglected their duty. Moreover, the patient's theory offered a simple and convincing explanation of his injury, while the doctor's theory was speculative and difficult. The Board were not surprised at the trial judge's refusal to accept the doctor's evidence on various vital points. This finding was based, not on the appellant's demeanour in the witness-box, but on certain other reasons given by the judge. The fact remained that the judge had found that the doctor was a person capable of committing perjury. The Board could not conceive that, if the doctor had diagnosed latent alcoholic neuritis at an early stage, he should not have referred to alcohol in conversation with the patient and his wife. Moreover, they could not believe that the doctor did not remember the patient developing foot-drop and holding on to him for support, or looking at the patient's foot at the time. The doctor's theory of alcoholic neuritis was, they thought, based on speculation rather than experience. There was no evidence that the patient suffered from this condition, and to hold that he did so suffer would be to pass from inference to conjecture. The theory required both the existence of latent alcoholic neuritis and its precipitation by the slight shock of injection; this, on the evidence, was highly improbable. On the other hand, the patient's symptoms were consistent with his explanation as well as with the doctor's explanation. His explanation was clear, simple, and straightforward, while that of the doctor was speculative, theoretical, and unconvincing, and it had not been displaced by the doctor's evidence. The two theories having been carefully weighed by the trial judge, it would not be proper or safe, or in accordance with sound practice, to reverse his clear conclusion in fact. The Board therefore dismissed the doctor's appeal and awarded the patient his costs.

* [1935] A.C. 243; *British Medical Journal*, 1935, i, 506.

Medical News

A Chadwick Public Lecture on "Modern Hospital Construction" will be delivered by Mr. Lionel G. Pearson, F.R.I.B.A., at the Royal Institute of British Architects, 66, Portland Place, W., on Thursday, April 2nd, at 8.15 p.m. Admission is free.

Dr. E. Kaye Le Fleming, Chairman of Council of the British Medical Association, will deliver a lecture on "The Problem of Physical Education in Schools" at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., on Tuesday, April 21st, at 5.30 p.m.

The ninety-fifth half-yearly dinner of the Aberdeen University Club, London, will be held at the Café Royal on Thursday, April 2nd, at 7.30 p.m. Dancing will follow, and the chairman of the evening will be Lord Alness. The honorary secretary's address is 51, Harley Street, W.1.

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, March 26th, at 8.30 p.m., when an address will be given by Dr. L. A. Weatherly on "Debatable Medico-legal Episodes in the Long Life of an Alienist."

A meeting of the Medical Section of the British Psychological Society will be held at 11, Chandos Street, W., on Wednesday, March 25th, at 8.30 p.m., when Dr. H. Godwin Baynes will read a paper on "The Importance of Dream Analysis for Psychological Development." Dr. J. A. Hadfield and Dr. C. Wilson will open the subsequent discussion.

Meetings of the Association of Industrial Medical Officers will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Friday and Saturday, March 27th and 28th. On March 27th, at 5.15 p.m., there will be a business meeting, and at 5.45 p.m. papers will be read by Sir David Munro and Dr. T. M. Ling, on "Physical Standards in Industry," and by Dr. Ling, on "Psychological Factors in Sickness Absenteeism." The third dinner of the association will be held at 7.30 p.m. At 10 a.m. on March 28th Dr. R. E. Lane will read a paper on "The Prevention of Industrial Plumbism."

A sessional meeting of the Royal Sanitary Institute will be held at Birkenhead Town Hall on Friday, March 27th, at 4.30 p.m., when there will be discussions on "The Basis of Modern Meat Inspection," to be opened by Mr. N. M. Clayton, and on "Some Snags in Housing Schemes," to be opened by Mr. B. Robinson.

The next monthly clinical demonstration for medical practitioners at the Hospital for Epilepsy and Paralysis, Maida Vale, W., will be given on Thursday, March 26th, at 3 p.m., by Dr. Russell Brain.

In connexion with the two-day regional conference of the British Social Hygiene Council, a special meeting, for medical men and women only, will be held in the chemistry theatre, University of Manchester, on Friday, March 27th, at 8 p.m., with Dr. J. J. Butterworth in the chair, when Dr. Morna Rawlins will speak on "The Treatment of Gonorrhoea in Women" and Dr. E. Tytler Burke on "The Congenital Child." All medical men and women will be welcome.

A provincial meeting of the Tuberculosis Association will be held under the presidency of Dr. L. S. T. Burrell in the Physiology School, Downing Street, Cambridge, on Thursday, Friday, and Saturday, April 2nd, 3rd, and 4th. On the afternoon of the first day papers will be read on dispensary organization, and Dr. Russell Reynolds will demonstrate cinematography of the chest. The morning of the second day will be given up to joint meetings of the association with the International After-Care Committee of the Union International contre la Tuberculose; the afternoon will be spent at Papworth or the Strangeways Research Laboratory; and in the evening there will be a film show in the Physiological School. On Saturday morning a paper on chronic miliary tuberculosis by Professor Sayé will be followed by a discussion of cases. The conference is open to health visitors and tuberculosis

nurses. Accommodation for men is available at St. John's College. Ladies, and those not wishing for rooms in college, should apply early to the manager of the Garden Hotel, Belle Vue, or the manager of the Blue Boar, Trinity Street, Cambridge. The honorary secretary of the association is Dr. F. R. G. Heaf, Colindale Hospital, The Hyde, N.W.9.

Members of the Maternity and Child Welfare Group of the Society of Medical Officers of Health have been invited to attend a joint meeting of the sections of Disease in Children, Obstetrics and Gynaecology, and Epidemiology and State Medicine of the Royal Society of Medicine, at 1, Wimpole Street, W., on Friday, March 27th, at 4.45 p.m., when there will be a discussion on "The Prevention of Neo-natal Death, Injury, and Disease." A meeting of the Fever Hospital Medical Service Group of the society will be held at Park Hospital, Hither Green, S.E., on Friday, March 27th, at 3.45 p.m., when Dr. H. Stanley Banks will give a demonstration. There will be an opportunity for inspection of the new isolation hospital.

The annual convention of the Incorporated Society of Chiropodists is being held this week-end at the Langham Hotel, Portland Place, London. The medical and surgical lecturers are Dr. H. W. C. Vines, Mr. C. Lambrinudi, and Mr. T. Pomfret Kilner.

A three-months course in clinical practice and hospital administration will be given at the Brook Hospital, Shooter's Hill, S.E., by Dr. J. V. Armstrong, on Mondays and Wednesdays, at 9.30 a.m., and alternate Saturdays, at a time to be arranged, beginning April 1st. It is intended for those studying for the D.P.H., and complies with the requirements of the General Medical Council's revised regulations, which came into force on October 1st, 1931. A course may, however, be taken under the previous regulations for £4 4s. The fee (£3 13s. 6d.) should be paid to the medical officer of health, L.C.C. Public Health Department (Special Hospitals), County Hall, S.E.1.

The Fellowship of Medicine announces that a demonstration on the fundus oculi for M.R.C.P. candidates will be given at the West End Hospital for Nervous Diseases, Gloucester Gate, N.W., on March 31st, at 8.30 p.m. Lectures on diseases of children will be given at the National Temperance Hospital, at 8.30 p.m., on March 25th and 27th and April 1st and 3rd. A week-end course in urology will be given at All Saints' Hospital on March 28th and 29th. Courses in April include: infants' diseases, from March 30th to April 4th; proctology, at St. Mark's Hospital, April 20th to 25th; ophthalmology, at Royal Eye Hospital, April 20th to May 1st; medicine, surgery, and gynaecology, at Royal Waterloo Hospital, April 27th to May 9th; psychological medicine, at Maudsley Hospital, April 27th to May 30th; and week-end courses in diseases of the heart and lungs, at Victoria Park Hospital, April 18th and 19th, and in medicine and surgery, at National Temperance Hospital, April 4th and 5th. Courses, etc., are open only to members and associates of the Fellowship of Medicine, 1, Wimpole Street, W.

A world congress of Jewish doctors will be held at Jerusalem on April 21st to study the health situation of Hebrew populations throughout the world, and the professional problems of Jewish practitioners and students in various countries. The congress is organized by the Society for the Protection of the Health of Jewish Populations, Avenue des Champs Elysées 92, Paris.

A dermatological congress will be held at Strasbourg on May 10th to discuss the new data on experimental syphilis and their application to the clinical study of human syphilis. Further information can be obtained from Dr. Pautrier, Faculté de Médecine, Strasbourg.

Sir Kingsley Wood, M.P., Minister of Health, will open the *Daily Mail* Ideal Home Exhibition at Olympia, on Tuesday, March 24th, at 11.30 a.m. The exhibition will remain open from 10 a.m. to 10 p.m. until April 18th.

The February issue of the *Journal of Laboratory and Clinical Medicine* contains the papers read at the second annual meeting of the American Association for the Study and Control of Rheumatic Diseases, and the fourth Conference on Rheumatic Diseases in June, 1935.

The Rockefeller Foundation has provided a research fellowship at the Institute of Medical Psychology, London, from March 1st, 1936. The fellowship has been awarded to Dr. A. T. Wilson for purposes of research into the relation between the emotional and organic factors in certain physical disorders.

The issue of *Surgery, Gynecology and Obstetrics* for February 15th is devoted to the proceedings of the twenty-fifth Clinical Congress of the American College of Surgeons, and that of the *American Journal of Obstetrics and Gynecology* for February to the proceedings of the forty-eighth annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons.

Lord Willingdon, the retiring Viceroy and Governor-General of India, has consented to become chairman of St. George's Hospital Rebuilding Council.

The Post-Graduate Medical Institute at Leningrad has created a chair for the pathology and physiology of nervous activity, under the direction of K. Petrova, a pupil and collaborator of the late Professor Pavlov.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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QUERIES AND ANSWERS

Gas-Air Anaesthetic Apparatus for Midwifery

Dr. R. J. MINNITT (Liverpool) writes in answer to "Obstetrician" (*Journal*, March 7th, p. 513): I would like to ask what make of gas-air midwifery apparatus he was using when he speaks of the "inlet valve becoming frosted up." Apparently there was a leak of gas at some nut not thoroughly tightened. If "Obstetrician" cares to write to me, explaining in detail his trouble, I should be pleased to advise him.

"Verrucae"

"H. S. (M.D.Leeds)" writes in reply to the query of "O. F. S." (*Journal*, February 29th, p. 455): Monochloracetic acid can be applied by working the acid into the growth with an orange stick, care being taken not to allow any excess of acid to run over adjacent parts. Applications should be made every fourth day, and the surface of the growth should be removed each time with a scalpel to encourage penetration. This method is usually painful. A suitable pad should be applied proximally to avoid pressure when walking. An alternative and preferable method is the weekly application of salicylic acid (60 per cent.) in ung. plumbi oleatis. A piece of felt having a perforation the exact size of the growth is applied to the part in such a manner that the growth alone is exposed, and the entire dressing should be protected by adhesive plaster. The destroyed tissue should be removed each time before reapplying the ointment

Stammering

"EXSTA" writes in reply to "Old October" (*Journal*, February 29th, p. 455): There are two methods by which stammerers can be treated: (1) *Speech exercises.* This method has been known for generations to "quacks." I use this word without casting any slur on them. They were not trespassing on ground occupied by the medical profession, which had neglected the subject. The theory behind these exercises is that the patient doesn't know how to speak. This is absurd, because the patient will not stammer if he speaks when no one is present. The medical profession have recently used this method in certain hospitals and the L.C.C. have classes for adults and children. Its success depends on suggestion, which depends largely on the teacher's personality. If the instructor is impressive, plausible, sympathetic, and if he has formerly been a stammerer himself, he can often produce a marvellous result in a very short time. Statistics of cures, however, are chiefly valuable for suggestion purposes; actually the vast majority relapse. This, however, may not be the case with young children. (2) *Psychotherapy*, from a scientific point of view, should be the proper approach; but I have little knowledge of what success it has met with. The psychoanalytical and kindred methods require an enormous amount of time, patience, and money. I do, however, know of a case, incidentally a bad one, which cleared up with a little superficial analysis. The psychotherapist claimed no special praise for this, stating that anyone with the slightest psychological knowledge would have achieved the same result. I do not believe that one in a thousand are as tractable as this was. Incidentally this patient previously had been to classes organized by a local authority for speech exercises to cure stammering, and from the description given the instructor there was entirely devoid of personality, and not even temporary improvement had taken place in the patient. Hypnotism has been employed; but, as far as I know, without much success. I am under the impression that stammerers tend to improve as they grow older, and should like to know if your readers can confirm this.

Income Tax

Allowance to Daughter

"ZZ" inquires whether it is possible to execute a seven or ten year deed which will transfer an amount of assessable income from the parent to the daughter so that it shall be effective in enabling the daughter to claim relief thereon.

*** No. The matter is governed by a complicated provision—Section 20 of the Finance Act, 1922—the effect of which is that voluntary dispositions of income in favour of children are not effective for income tax purposes unless they are for the life of the child or of the disponer—whichever is less. The only effective disposition would be one which was for the life of the child, but it could be made liable to revocation by the disponer provided that such revocation could not be exercised without the consent of some other person than the disponer and his wife.

Purchase of Practice

"M." took over a practice—a death vacancy—undertaking to pay one-half of the profits to the widow for three years, or until the son is ready to take over a half-share in the practice. On these terms the other half-share was of course acquired by "M." Earned income relief has been given only on "M.'s" half-share. Is that correct?

*** Yes. Earned income relief is a personal relief, and the half-share which goes to the widow and is her income is not earned by her.

LETTERS, NOTES, ETC.

Urethral Tumour

Dr. R. FISHER (King's Langley) writes: The following case may be rare enough to be recorded. An unmarried Scandinavian woman, aged 26, was admitted to West Herts Hospital on April 17th, 1935, complaining of a swelling in the pudenda. It had been noticed for a fortnight, and caused no pain or interference with micturition. Menstruation was normal. On examination a spherical mass about three-quarters of an inch in diameter was found projecting from between the labia majora at the anterior part of the vulva. The exposed surface was ulcerated, and the purple colour suggested strangulation. Under anaesthesia a pedunculated tumour was found arising from the anterior wall of the urethra about one-quarter to one-half inch from the meatus. The tumour and its attachment to the urethral wall were removed. Recovery was uneventful. Microscopical examination revealed the growth to be a cellular fibroma. These tumours are stated by Eden and Lockyer to be very rare. The absence of any disturbance to micturition appeared remarkable. I have to thank Dr. Scarff of the Middlesex Hospital for examining the section for me.

Collar Stud in Larynx

Dr. HORACE GOOCH (Church Stretton, Shropshire) writes: The rarity of the undermentioned case is my excuse for reporting it. A boy, aged 2 years, was playing in the garden with other children when he was observed to have a convulsive attack, followed by symptoms of choking and rapid death. Post-mortem examination revealed a small collar stud lying upside down in the larynx. The point of the stud had passed between the vocal cords and the base was resting upon them. The stud was of the variety sold with new shirts. The base exactly fitted the child's larynx, but the stud was not impacted, being easily picked out with forceps. It was conceivable that had the child been immediately picked up by the feet and shaken the stud might have been dislodged.

Caveat Emptor

Once again it seems necessary to put busy and preoccupied doctors on their guard against the blandishments of an itinerant canvasser who may try to get their signature to an order for a high-sounding encyclopaedia in several volumes "with research privileges." As we pointed out three years ago, the book and the "service" may or may not be worth the subscription; but whoever feels attracted by offers of this kind would do well to read the terms and conditions very carefully before signing any document.

Twenty-one Years in Labrador

The adventurous story of twenty-one years on the Arctic shores of Labrador was told by Dr. H. L. Paddon at a meeting arranged by the Grenfell Association at the Caxton Hall, Westminster, on March 18th, with Lord Horder in the chair. First inspired when he was a schoolboy at Repton by a lecture given by Sir Wilfred Grenfell to the school, Dr. Paddon gave up his proposed career in law and became a doctor, so that he could devote his life to medical work in Labrador. Immediately after taking his medical degree he went out to the Labrador coast, where he has lived ever since, and soon became one of Grenfell's chief supporters in his work for the people of that inhospitable land. The creator of the hospital station at North-West River, Labrador's most northerly outpost, Dr. Paddon had some exciting tales to tell of his life on the coast. The difficulties he has had to face in order to reach outlying communities are enormous. Journeys of thousands of miles through the Arctic winter, by sea or by dog team, were an everyday experience in his life. Blizzards and snowdrifts had to be faced in order to reach scattered families, to whom the visit of a doctor was almost a miracle. Proper facilities were unobtainable in the early days, and Dr. Paddon would often have to operate on a rickety table by the light of a candle in some small cottage. Remarkable progress has been made during this time. North-West River has sprung from a hamlet of four families to a community of 250, with a school, hospital, and maternity home. Every year Dr. Paddon patrols the coast as far northwards as possible, and makes a winter journey of over a thousand miles by dog team.

Corrigendum

In the last line of column one of page 527 the word ὀξύς was misspelt. We regret that this obvious slip should have been overlooked.

Glaxo Laboratories Ltd. (Greenford, Middlesex) have sent us a copy of the latest catalogue of their products, which is planned to facilitate ready reference. The bacteriological, ampoule, vitamin, and food products are grouped separately, and a medical price list is enclosed in the front cover. A copy will be sent, post free, by the laboratories to any member of the profession who has not already received one.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 46, 47, 48, 49, 50, 51, 52, 53, 56, and 57 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 54 and 55.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 116.